# HOPE AND DEPRESSION IN CHRONIC PAIN CLIENTS WITH REGARD TO WORKERS' COMPENSATION STATUS

By

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Physicians and other health-care providers have documented that workers' compensation patients do not respond as positively to treatment as patients not receiving compensation. The purpose of this study sought to determine whether chronic pain patients' compensation status affected their responses to a cognitive-behavioral counseling intervention. This research measured subjects' levels of hope and depression as responses to the intervention. In addition, subjects' initial levels of hope and depression were measured at the onset of treatment to determine whether compensation status had a differential impact upon subjects' emotional states. Finally, retention rates were compared since compensation status was believed to affect compliance with treatment.

This research was conducted with 32 subjects who were workers' compensation recipients and 30 noncompensation

subjects. These were randomly assigned to six groups which ranged from 8 to 14 members. The intervention utilized in this research followed a cognitive-behavioral protocol for chronic pain and depression.

The results indicated that both groups responded equally well in regard to reported levels of depression; however, compensation subjects did not develop the same degree of hope as did their noncompensation counterparts. This research revealed that the retention rates were nearly identical in regard to compensation status. Results also found that compensation clients reported significantly higher initial levels of depression yet responded as favorably to treatment as the noncompensation subjects. Initial levels of hope were slightly lower for compensation subjects than for their noncompensation counterparts.

Possible explanations and implications for these findings were discussed along with directions for future research in this area. In addition, it was proposed that counselors provide additional interventions such as a psychoeducational component designed specifically for compensation clients to negate the potentially detrimental emotional impact of the compensation system.

# CHAPTER I
# INTRODUCTION

Rehabilitation counselors and other caregivers often assist clients who experience physical problems that greatly impact on their lives. Physical pain or, more specifically, chronic pain is one such problem. John Bonica (1990c) reported that between 25% and 30% of the United States population experiences some type of ongoing pain, most of whom fail to find adequate relief. Consequently, pain is a significant cause of suffering and disability that seriously impairs the quality of life for millions of individuals.

Chronic pain is a major problem in America's workplaces. It has been estimated that 550 million sick days are used annually due to pain syndromes suffered by the workforce (Chaplin, 1991) and that $60 billion is spent annually on chronic pain syndromes, primarily for income compensation and treatment (Jamison, Matt, & Parris, 1988). Compensation refers to wage-replacement benefits for an injured worker unable to work due to an occupational injury or disability. As Naisbitt and Aburdenne (1985) noted, health-care and disability management are becoming significant business costs.

Developments in pain research have led to the understanding that pain is determined by physiological, psychological, and social variables (Melzack & Casey, 1968; Melzack & Wall, 1965, 1982). The inclusion of psychological factors in pain experience has resulted in the understanding that "pain is never simply a matter of nerves and neurotransmitters but always requires a personal and cultural encounter with meaning" (Morris, 1991, p. 76). That is, in addition to physiological factors, pain involves an interpretation based on personal and cultural factors. Thus, a construction worker falling from the roof of a building would not only experience physical pain but would also experience psychological, familial, social, and economic distress, which could greatly increase the worker's suffering. Consequently, the acknowledgement of psychological, social, and cultural factors in pain has encouraged the inclusion of counseling interventions in the treatment of chronic pain.

Mental health professionals working with individuals with chronic pain have observed important factors affecting the response to counseling interventions; compensation appears to be a significant factor. Financial compensation appears to have a significant impact on an individual's motivation and compliance with treatment interventions (Morris, 1991; Walsh & Dumitru, 1991). However, the influence of financial compensation on recovery from injury

is one of the most controversial issues in the treatment of pain (Walsh & Dumitru, 1991).

Many authors have noted that individuals receiving compensation payments respond less favorably to traditional medical treatment (Finneson, 1977; Flynn & Hogue, 1979; Slepian, 1966; Waddell, Kummell, & Lotto, 1979; Warfield & Crews, 1987). Fishbain, Goldberg, Labbe, Steele, and Hurbert (1988) reported that compensated patients seem more difficult to treat and receive less benefit from treatment than do noncompensated patients.

It appears that financial compensation also has a corresponding impact on a psychological level. Guest and Drummond (1992) suggested that chronic pain compensation clients may experience more emotional distress and be at greater risk for psychological distress. "Compensation recipients showed more signs of distress, had greater difficulty coping with pain, and reported that pain disrupted various aspects of their life to a greater degree than subjects who had settled their claim" (Guest & Drummond, 1992, p. 125). However, other researchers (e.g., Walsh & Dumitru, 1991) question the extent of such psychological differences.

Concerning psychological symptoms, there is an established link between chronic pain and depression (Brown, 1990; Magni, 1987; Romano & Turner, 1985). Ward (1990) noted the importance of recognizing clients'

depression since the coexistence of chronic pain and depression can seriously confound treatment. Unless depression is recognized and treated, intransigent responses can be expected.

> In some patients, particularly when pain is a symptom of depression, treatment of the depression alone will result in a satisfactory outcome of the pain problem. In other patients, treatment of the depression must be initiated to help break the patient out of the cycle of chronic illness behavior and to improve compliance with other treatments. (Ward, 1990, p. 310)

Accordingly, the concurrence of chronic pain with depression also may be a factor in individuals' receiving compensation.

Compensation status can present a unique array of behaviors and symptoms. Compensation status offers actual and potential benefits or rewards that create a secondary gain situation. That is, in addition to receiving wage replacement, individuals often receive additional attention from family members and medical providers and reduced responsibilities at home and at work. For example, Worral and Appel (1987), in an investigation of a number of studies of back-injured compensation claimants, concluded that the level of benefits offered is related to time off work. In general, "economic incentives are inherent in the workers' compensation program, and it appears that the average worker responds to such incentive" (Walsh & Dumitru, 1991, p. 226).

The potential of work-injured individuals' receiving a large financial settlement due to their injuries also has

enormous consequences on motivation and treatment compliance (Caldwell & Chase, 1977; Morris, 1991).

Secondary gains create formidable obstacles for favorable treatment outcomes. Such gains can alter motivation and compliance to interventions (including counseling) because there are reduced incentives to resume work and other responsibilities. Thus, it is expected that compensation recipients will be resistant to counseling and other treatment interventions. Consequently, their levels of depression and hope for successful treatment outcomes are not expected to be positively influenced by counseling interventions such as cognitive-behavioral approaches (which have demonstrated efficacy with chronic pain clients in general) (Turner & Chapman 1982a, 1982b; Turner & Jenson, 1993) and other counseling interventions.

In addition to the medical and psychological ramifications, compensation is an enormous social issue. America is currently struggling with the high cost of health care, and President Clinton has proposed sweeping health-care reforms in part to constrain rising costs. Nationally, workers' compensation insurance is a significant consumer of health-care services. In November of 1993, the Florida legislature rewrote the workers' compensation law partly to help control soaring costs. This staggering problem and concomitant cost give considerable motivation to identifying

and understanding those factors that expedite treatment of chronic pain clients.

## Theoretical Framework

Serving as a theoretical underpinning of this dissertation is the cognitive-behavioral perspective. The basic assumption of this perspective is that the behavior of an individual is influenced not only by sensory phenomena but also by the way the individual interprets his/her world and assigns meaning to events (Turk, Meichenbaum, & Genest, 1983). Individuals are viewed as active processors and interpreters of environmental stimuli and are problem solvers rather than passive recipients (Turk, Meichenbaum, & Genest, 1983). Thus, sensory, affective, behavioral, and cognitive factors are all viewed as contributing to an individual's experience.

Drawing from this theoretical perspective, cognitive-behavioral therapies have been developed and refined, primarily within the last two decades. This development resulted as behavioral scientists questioned the adequacy of simple learning theory models to explain behavior and recognized the importance of an individual's thoughts, attributions, appraisals, and images in emotions and behaviors (Turner & Romano, 1990).

Cognitive-behavioral approaches have been developed for different client needs and populations. For example, this approach has been adapted for the treatment of anger,

anxiety, depression, and other problems. In particular, Beck, Rush, Shaw, and Emery (1979) designed a cognitive therapy for the treatment of depression that places emphasis on the identification and correction of negative distortions in clients' views of their experiences and themselves.

More recently, cognitive-behavioral therapy has shown promise for treating an array of clinical pain syndromes. "Cognitive-behavioral methods are now used frequently to help manage chronic nonmalignant pain problems and also to reduce pain and discomfort associated with cancer and its treatment" (Turner & Romano, 1990, p. 1711). A goal of cognitive-behavioral therapy with pain clients is to reduce feelings of helplessness and hopelessness and to assist them in gaining control over their experience of pain. Therapy involves educating the patient about the (a) multidimensional aspect of pain, (b) identification of pain-eliciting and pain-aggravating situations, thoughts, and behaviors, and (c) various coping skills, such as stress management, relaxation training, distraction, goal setting, and increased activity (Turk & Flor, 1984).

Depressive symptoms may be the consequence of the individual's pain and the limitations it imposes on life, or chronic pain may be an expression of an underlying depression which is manifested through pain symptoms (Krishnan & France, 1987). Consequently, a simplistic cause-and-effect model of depression and chronic pain has been avoided (Brown, 1990).

Chronic pain clients commonly experience hopelessness as a component of their depression. Beck's cognitive triad offers an explanation of the interrelationships among pain, depression, and hopelessness (Beck et al., 1979). The cognitive triad consists of three central cognitive patterns that elicit negative interpretations of self, world, and future. More specifically, the depressed client negatively evaluates himself or herself as well as his/her experiences and future possibilities. A negative view of the future instills a sense of hopelessness. While suffering from pain, an individual often experiences depression. Thus, chronic pain clients often experience hopelessness as an aspect of depression because they believe the future will not change, and, consequently, they have no reason for hope. They then often view counseling and other treatment interventions as futile.

Turner and Clancy (1988) called for the identification of client pretreatment characteristics that may differentially affect their responses to treatment. Since cognitive-behavioral approaches have provided an effective treatment framework for chronic pain clients, this model can be used to identify pretreatment client characteristics and thus can be applied to an investigation of hope and depression in compensation and noncompensation chronic pain sufferers. The cognitive-behavioral theory will be discussed more fully in the literature review in Chapter II.

## Statement of the Problem

The problem addressed in this study is how compensation and noncompensation clients with chronic pain differ in their responses to a specific counseling intervention. Differential response to treatment in these groups has been documented in medical procedures such as surgery and physical therapy (Burk, 1976; Hammonds, Brena, & Unikel, 1978; Raaf, 1959). However, a review of the counseling and psychological literature revealed limited research in response differences to treatment between compensation and noncompensation clients. More specifically, this study addressed whether compensation clients have and maintain lower levels of hope and higher levels of depression than their noncompensation counterparts.

## Rationale for the Study

It is important for counselors to be aware of factors affecting chronic pain clients' responses to treatment. There is considerable evidence to support the belief that such clients are helped in the management of pain by using cognitive-behavioral interventions (e.g., Turner & Chapman 1982a, 1982b; Turner & Jenson, 1993), and the efficacy of these techniques in the treatment of chronic pain was established recently (e.g., Turner & Jenson, 1993). However, Turner and Clancy (1988) and other authors have called for an increased focus on pretreatment variables that may affect clients' responses to counseling.

The differential response to treatment by compensation clients has been well documented in the medical literature. Compensation patients appear to be more difficult to treat medically and seem to benefit less from treatment than do noncompensation patients (Fishbain et al., 1988). Specifically, compensation patients are reported to respond less favorably to lumbar disk surgery (Burk, 1976; Raaf, 1959), conservative management including traction and physical therapy (Hammonds et al., 1978), and multidisciplinary approaches used in pain centers (Hammonds et al., 1978).

The differential response to treatment has been less well documented in the literature that addresses psychological factors surrounding those clients who experience chronic pain. Several studies comparing compensation and noncompensation patients' responses to psychological assessments identified no significant statistical differences between the two groups (Mendelson, 1984; Pels & Merskey, 1982). However, more recently, Guest and Drummond (1992) found compensation recipients had more indicators of emotional distress, greater difficulty coping with pain, and more pain-disrupted aspects of their lives than did noncompensation clients.

Many chronic pain clients, after years in a passive patient role, have difficulty accepting a more active role in therapy. "Those subjects obviously did not accept the basic

goal of the [cognitive-behavioral] treatment to overcome the role of the patient, which implies being taken care of, and to replace it with a feeling of self-management and self-efficacy" (Basler & Rehfisch, 1990, p. 302). Thus, chronic pain clients often have unrealistic expectations and may terminate treatment prematurely.

This research was designed to measure whether there is a differential response to a cognitive-behavioral treatment approach by clients with chronic pain who receive compensation and clients who do not receive compensation. Elucidating the relationships among compensation, chronic pain, hope, and depression has important treatment implications for counselors. If chronic pain clients who receive compensation are referred for treatment with elevated levels of depression and lowered levels of hope, initial treatment interventions might focus on these factors before attending to the issues directly associated with their chronic pain.

## Purpose of the Study

The purpose of this study was to determine the differences between compensation and noncompensation chronic pain clients in their responses to a short-term, cognitive-behavioral intervention. Levels of depression were measured since depression is a common symptom of chronic pain, and cognitive behavioral interventions have proven successful in the treatment of depression. Levels

of hope also were assessed because hope may be an indicator of patients' expectations of better future circumstances, including positive treatment outcomes. Additionally, pretreatment differences were measured, and the treatment drop-out rates of the two groups were compared, since research with chronic pain clients utilizing a cognitive-behavioral intervention has resulted in significant problems with client retention (Basler & Rehfisch, 1990).

## Research Questions

The following research questions were addressed in this study:

1. What is the difference in pretreatment level of hope between compensation and noncompensation chronic pain clients?

2. What is the difference in pretreatment level of depression between compensation and noncompensation chronic pain clients?

3. What is the difference in treatment effects on level of hope between compensation and noncompensation clients?

4. What is the difference in treatment effects on level of depression between compensation and noncompensation clients?

5. What is the difference in the retention rate of clients between those who receive compensation and those who do not receive compensation?

6. What is the difference in the relationship of hope and depression for compensated and noncompensated clients following treatment.

## Definition of Terms

For the purposes of this dissertation, the following definitions are used.

Acute pain is defined as a feeling of distress, suffering, or agony caused by stimulation of specialized nerve endings. Acute pain is an immediate physiological response to tissue injury. Acute pain normally subsides within a month. Although psychological factors influence acute pain experience, it rarely is a result of psychological or social factors.

Chronic pain is pain that persists a month beyond the usual course of acute pain or a reasonable time to heal. In contrast with acute pain, chronic pain does not serve a biological function and may be caused or influenced by psychological or social factors.

Compensation refers to the wage-replacement benefits an injured worker receives due to an occupational injury or disability. Compensation and compensated may refer to different sources of income. In this study, compensation

will refer to those individuals who receive workers' compensation benefits.

Depression refers to an unpleasant subjective state characterized by feeling sad, demoralized, lonely, hopeless, or worthless; suicidal ideation; and/or insomnia (Mirowsky & Ross, 1989). Depression is characterized by a negative view of self, experience, and the future.

Hope is an overall belief that the future holds the potential for positive outcomes.

Retention rate is the portion of treatment sessions attended.

Secondary gains are various benefits or environmental reinforcers that an individual may receive from continued pain (e.g., time off work, financial compensation or settlement, and increased attention from family or treatment providers).

Workers' compensation is a federally mandated, state-administered insurance program intended to provide medical care, rehabilitation services, and wage replacement for injured workers. Workers in this program generally receive between 50% to 80% of their preinjury salary and complete medical treatment for their injuries and concomitant complications.

## Organization of the Remainder of the Dissertation

The remainder of the dissertation consists of four chapters. In Chapter II, the related literature is reviewed

and clarified. This is followed by the research methodology in Chapter III. In Chapter IV, the results of the study are presented. Finally, Chapter V includes the limitations of the study, conclusions, discussion, and recommendations.

## CHAPTER II
## REVIEW OF THE RELATED LITERATURE

### Introduction

This chapter includes a review of the literature of workers' compensation recipients and their responses to medical and psychological interventions. First, pain types and theories of pain are discussed, followed by a review of the current counseling and psychological interventions for chronic pain and the outcome research. A review of the literature on workers' compensation then is presented, along with the cognitive-behavioral theory and treatment outcomes that provide the theoretical framework for this research.

### Pain

To understand more clearly individuals receiving workers' compensation, it is important to discuss chronic pain, the multidimensional aspects of pain, and alternative conceptualizations of pain. An injured worker is caught in a complex interplay of economic, social, familial, and medical factors as well as the personal and physical aspects of the pain experience. Aronoff (1991), in an article on chronic pain, disabilitiy, and workers' compensation, stated,

> These individuals may have significant financial, psychosocial, and enviromental reinforcement for the maintenance of their disability and little incentive to return to work. Often there is no direct correlation between objective impairment and

an individual's request for disability status. (p. 330)

Aronoff's statement suggests that the pain process is exceedingly complicated and that workers' compensation clients often are unresponsive to conventional medical treatment. Recently, counseling and psychological interventions have been developed that are more suited to the multidimensional aspects of pain that conventional medical interventions do not address. Following is a brief review of the literature that has led to the current understanding and treatment of pain.

Overview of Pain

Pain is difficult to define due to its complex physical and emotional nature. Pain can have many causes, and each experience can differ greatly, depending on its source and the personal response. For example, migraine pain is vastly different from the stabbing pain of injury or aching dental pain. In 1973 the International Association for the Study of Pain (IASP) appointed a committee to create a definition of pain that was appropriate for scientific discussion. This committee defined pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" (IASP, 1979, p. 24). They described pain as including both physical sensations and emotional factors.

Beyond its staggering personal impact, pain is a staggering national issue; millions of people suffer from

acute and chronic pain. A significant percentage of these sufferers fail to find adequate relief (Bonica, 1990a).

The experience of pain is the most common reason why individuals seek physicians. The Nuprin Pain Report (Harris, 1985) reported that 14% of the American population had backaches for 30 or more days per year. Additionally, 13.8% had joint pain, 13.1% had headaches, and 9% had muscle pain for 30 days or more per year. The study found that 55% of respondents indicated they had experienced back pain for one or more days per year.

In most instances, the causes of acute, painful conditions are evaluated and treated effectively. However, there is evidence that many patients with posttraumatic or postoperative pain are not effectively relieved and their conditions progress to chronic pain. Bonica (1990c) stated,

> The data suggest that more than a third of the American population has chronic painful conditions, and of these 50% to 60% are partially or totally disabled for periods of days (e.g., those with headache), some for weeks and months (e.g., those with reflex sympathetic dystrophy), and some permanently (e.g., those with low back pain, cancer pain, and arthritis). In most patients with back disorders, arthritis, headache, cancer, and other chronic painful conditions, usually it is not the underlying pathology, but the pain that prevents them from carrying out a productive life. (p. 182)

Since pain limits an individual's ability to lead a productive life, there are serious economic problems in addition to health issues. Thus, pain management has become a huge economic and social issue. Bonica (1990a) stated that "proper management of pain remains one of the most important

and most pressing issues of society in general and the scientific community and the health profession in particular" (p. 2)

The Nuprin Pain Report (Harris, 1985) confirmed that pain is a major problem in the workplace; it reported that 550 million workdays were lost among adult, full-time employees. This figure exceeds 650 million workdays when part-time and teenage employees are included. Using mean income statistics for 1985, this would account for a $65 billion loss in work productivity. Bonica (1990a) suggested that 66% of this loss can be attributed to chronic pain. While these figures are calculated in dollar costs, they do not reflect the individual intangible loss in quality of life and reduced self-esteem that often accompanies chronic pain and its resulting disability (Aronoff, 1991).

Acute and Chronic Pain

Since this researcher is investigating individuals receiving workers' compensation, it seems important to distinguish the two major categories of pain, which are acute and chronic. The relationship of chronic pain and compensation clients is better understood by discussing acute pain.

Bonica (1990b) defined acute pain as

> a complex constellation of unpleasant sensory, perceptual, and emotional experiences and certain associated autonomic, psychologic, emotional, and behavioral responses. Invariably acute pain and these associated responses are provoked by noxious stimulation produced by injury and/or disease of

> skin, deep somatic structures or viscera, or abnormal function of muscle or viscera that does not produce actual tissue damage. (p. 18)

Although psychological factors have an influence on acute pain experience, acute pain usually does not result from emotional, social, or environmental factors. Acute pain typically serves as a warning to the individual that tissue damage is occurring (or has occurred) and that a response is required. Such pain, then, is the biological mechanism that warns an individual to move, for example, a hand from a hot stove top.

The mechanisms and symptomatology of the conditions that cause acute pain are well understood, and treatment of these underlying causes is relatively routine. With normal healing or effective therapeutic treatment of an injury, acute pain usually is limited, and all symptoms usually cease within days or weeks of onset.

Chronic pain may begin as acute pain, but it is not merely an extension of acute pain. Eventually the pain seems to change its nature. Chronic pain and acute pain are as different as cancer and the common cold (Morris, 1991). Chronic pain often is defined as pain that persists for more than 6 months after the initial injury or onset of illness. However, more recently, Bonica (1990b) defined chronic pain as

> pain that persists a month beyond the usual course of an acute disease or a reasonable time for an injury to heal or that is associated with a chronic pathologic process that causes continuous pain or

> the pain recurs at intervals for months or years. (p. 19)

Bonica cautioned that waiting for 6 months before treating an injury as a chronic condition may allow the process to become irreversible.

While acute pain is primarily a physiological response, chronic pain is influenced by psychological as well as physiological variables (Melzack & Casey, 1968; Melzack & Wall, 1965, 1982). As Morris (1991) stated,

> Pain, as I have proposed, is far more than simply or exclusively a medical problem. It cannot be reduced to mere transaction of the nervous system. The experience of pain is also shaped by such powerful cultural forces as gender, religion, and social class. It is reinforced, and sometimes created, by psychological and emotional states such as guilt, fear, anger, grief, and depression. (p. 20)

Due to these influences, treatment of chronic pain does not attempt to "cure" the patient since "no cure can be anticipated, or it would have been evident long before" (Gildenberg & DeVaul, 1985, p. 14). Attention is not directed to the underlying pathology (as in treating acute pain) but to helping the patient cope with the functional disabilities resulting from chronic pain (Gildenberg & DeVaul, 1985). Emphasis is placed on resocialization and remobilization through treatment of the emotional distress and isolation that results from suffering.

Theories of Pain

Pain often is viewed as purely a physical problem, and many professionals still question the appropriateness of the

psychological understanding of pain. However, recent theories of pain question the narrow focus of a purely physicalistic understanding of pain and now include broader factors such as social, economic, familial, and intrapsychic factors. This is especially important in individuals who receive compensation, as the perception of pain is much more than a physical phenomenon; it involves complex multifaceted components such as interpersonal reinforcement, economic effects, and even cultural values.

Pain always has been a significant concern of humankind and the focus of much effort to understand and control it. Exorcisms, prayers, and incantations are indicative of ancient human preoccupation with pain. For "primitive" humans, the cause of internal pain was a mystery and often shrouded in superstition and magic. The treatment of pain usually called for medicine men, conjurers, or shamans.

The Greeks and Romans proposed that all matter is composed of ever-changing elements of air, fire, earth, and water. Sensation was considered as the state of awareness occasioned when elementary particles invaded the body's pores and ducts. Pain was envisioned as the intrusion of sharp, hooked particles. The Roman, Galen, carried out extensive studies of the nervous system and established the importance of the central nervous system. He postulated that pain was the lowest form of conscious sensation, caused by either injury in the continuity of tissue or violent disruption to

the humors (bodily fluids). Some historians consider that the Greeks to have been the first to use analgesics such as opium, henbane, and hemp systematically for the treatment of pain.

During the 17th century, Descartes conducted extensive anatomic studies that included sensory physiology. He envisioned the nervous system as tubes that connected the brain with the skin and other tissue by fine threads that formed nerves (Bonica, 1990a). Descartes' concept of pain pathways stated,

> If for example fire comes near the foot, the minute particles of this fire, which as you know move with great velocity, have the power to set in motion the spot of the skin of the foot which they touch, and by this means pulling upon the delicate thread which is attached to the spot of the skin, they open up at the same instant the pore against which the delicate thread ends, just as by pulling at one end of a rope makes to strike at the same instant a bell which hangs at the other end. (Melzack & Wall, 1965, p. 971)

This direct connection from tissue to brain proposed by Descartes and others was formulated later by Sciff (1858) as the specificity (sensory) theory of pain. This theory was supported by Blix, Goldwater, and Donaldson, who in experiments near the turn of the century discovered separate spots on the skin for warmth, cold, and touch (Bonica, 1990a).

Noordenbros (1959) expanded the sensory theory by proposing the sensory interactive theory of pain, which identified two systems involving the transmission of pain and

other sensory information. Noordenbros proposed a slow system of unmyelinated and thinly myelinated fibers and a fast system involving large myelinated fibers. Noordenbros postulated that

> the small-diameter slowly conducting somatic afferent fibers and small visceral afferents project into the cells in the dorsal horn of the spinal cord and the summation of inputs from the small fibers produces the neural patterns that are transmitted to the brain to produce pain. (Bonica, 1990a, p. 9)

Noordenbros' (1959) multisynaptic postulation of large-diameter, fast-acting nerve fibers (which inhibit) and small-diameter, slow-acting nerve fibers (which excite) was a major step in the understanding of the neural transmissions of pain.

Melzack and Wall (1965) reexplored the specificity theory and the work of Noordenbros and concluded that there was strong support for the physiologic specialization of the nervous system. However, they questioned the physiologic assumption of a straight-through connection of nerves to the brain. They reported a lack of scientific support for the one-to-one relationship of stimulus to pain perception. They instead proposed the gate control theory, which suggests that the amount and quality of perceived pain is influenced by both physiologic and psychologic variables.

Prior to the development of the gate control theory, theories of pain had been primarily biologically oriented. As a result of the work of Melzack, Wall, and their

colleagues, now there is ample evidence that pain consists not only of physiological input but also of affective and cognitive components. In addition, in chronic pain, the experience of pain includes social or interpersonal clues or consequences along with any actual tissue pathology or injury. Thus, the gate control model included the importance of an individual's appraisals, judgment, and illness behaviors. This recent theory has led to the current multidimensional understanding of pain.

Multidimensional Aspects of Pain

The multidimensional understanding of pain is revolutionary, as it leads to a clearer understanding of the complex nature of pain. This understanding leads to new treatment approaches for individuals with chronic pain, including compensation recipients. The strict physiological interpretation and treatment of pain can exclude important variables of the pain process. Recognition of psychological variables has led to a more potent assessment and treatment of pain, especially in the case of chronic pain and compensation clients.

Expanding on the work of Melzack and Wall (1965), Melzack and Casey (1968) emphasized three dimensions of the pain experience:

1. Sensory-discriminative dimension. This is the electrochemical reception of noxious stimulation and the transmission of that stimulus to the brain.

2. Cognitive-evaluative dimension. This dimension addresses an individual's ongoing perception and appraisal of what is happening or what might take place regarding the sensation.

3. Affective-motivational dimension. The dimension of moods and sense of meaning and relationship for an individual to avoid harm or the expectation of harm. This occurs at the whole person level and within the social context.

Karoly and Jensen (1987) proposed a four-dimensional pain model. The four contexts of chronic pain are the biomedical context, individual-experiential context, immediate social context, and the broader sociological and cultural context.

The biomedical context constitutes our most fundamental understanding of pain "in the sense that unusual bodily functioning is typically understood--within the industrialized Western and Eastern societies--to be the rightful province of medicine" (Karoly & Jensen, 1987, p. 7). This context addresses and attempts to explain why the patient hurt.

The second context involves the individual's immediate personal and experiential aspect of pain. This context is a "constellation of psychological attributes that serve to characterize the individual's experience of hurt and suffering and that also lend themselves to descriptive and quantitative analysis" (Karoly & Jensen, 1987, p. 9).

This context includes the sensory-perceptual, affective, and cognitive components as well as behavioral aspects of pain.

The third context involves the immediate social, interpersonal, and economic relationships. The focus of this dimension can include the personal meaning of the pain in relationship to significant others and important life tasks. "In other words, chronic pain is a problem not just because it hurts, but also because the hurt or discomfort has important lifestyle implications" (Karoly & Jensen, 1987, p. 14). Social aspects of chronic pain include temporal/developmental (individual meaning formed over time), motivational, vocational, family, and self-perceptual/self-regulatory dimensions. Karoly and Jensen (1987) postulated that

> the pain sufferer evaluates himself or herself socially, cognitively, physically, normatively, and morally, and seeks to either modify the standards or bring his or her actions, emotions, and beliefs in correspondence with socially acquired criteria of acceptability. Therefore, there is a self-perceptual and self-regulatory dimension along which to appreciate the relational meaning of pain. This is the all-important dimension that defines how the patient makes sense of pain (usually independent of the analysis of the physician). (p. 19)

The final interpretive context refers not to the immediate physical, experiential, or relational meanings of pain but to the broader social and cultural environment. Context four includes not just the perspective of the individual with pain but the perspectives of all the players in the chronic pain arena (e.g., physicians, counselors,

insurance adjusters, hospital administrators, attorneys, etc.). Each of these players interacts with the pain client, and each has his or her own theoretical perspectives and interacts with the pain patient accordingly. Thus, the social and cultural milieu contributes to the individual's experience of pain.

The perception of pain occurs not simply on an individual basis but within a social network of meanings and reinforcers. Morris (1991) in The Culture of Pain wrote,

> When we recognize that the experience of pain is not timeless but changing, the product of specific periods and particular cultures, we may also recognize we can act to change or influence our own futures. (p. 4)

The understanding and recognition of the multidimensional nature of the pain experience, including these social and cultural factors (Melzack & Casey, 1968; Melzack & Wall, 1965), have led to a broader understanding of pain and its treatment. Mental health caregivers using counseling and often psychological interventions recognize that the pain experience happens in a cultural and social context and that such interventions are intended to assist the client in altering his or her experience of pain.

## Counseling and Psychological Interventions for Pain Control

With the multidimensional understanding of pain, counseling and psychological interventions now are seen as an important component of the treatment process. While many physicians still do not consider psychological and social

factors in their diagnosis and treatment, there is nevertheless a growing movement to view pain more broadly in assessment and treatment.

> In medicine, psychological interventions sometimes are viewed as alternatives to conventional, more invasive procedures, but it is important to appreciate that they are often integrated with somatic interventions in multidisciplinary practice. (Chapman, 1990, p. 1700)

Despite the integration of counseling and psychological interventions into the treatment of pain, Chapman (1990) cautioned that there is no single approach for pain management. Since pain is now viewed as a highly complex phemomenon, treatment often utilizes multiple intervention strategies. Patients vary in their ability to benefit from the various treatment options. Chapman (1990) listed five major psychologic interventions for the management of pain. These options are behavioral (operant), cognitive-behavioral, biofeedback, hypnosis, and traditional psychotherapy. An overview of these approaches and their applications in pain management follow.

Behavioral Treatments

Behavioral treatment for pain patients was pioneered by Fordyce (1974, 1976; Fordyce et al., 1973). Behavioral treatments focus upon the environmental contingencies and reinforcement of pain behaviors. The behaviorist begins with the assumption that pain can be redefined as pain behavior. These behaviors can be modified or extinguished by

withholding positive reinforcers. Turk and Rudy (1989) stated,

> These behavioral manifestations of pain or "pain behaviors" consist of overt sources of communication that convey to an observer that an individual is suffering (e.g., limping, grimacing, moaning, lying down). Once we begin speaking of observable behaviors, then we can consider the production and maintenance of those behaviors as being under environmental control through selective reinforcement. That is, significant others in the patient's environment, whether family, friends, or health care providers, respond to the patient's overt behavior. Significant others may positively reinforce these behavioral manifestations by providing attention or permitting the patient to avoid the performance of undesirable activities (e.g., physical activity), and thereby unwittingly contribute to the maintenance of these behaviors. Moreover, the insurance system may positively reinforce the expression of pain behaviors by providing financial incentives contingent upon the emission of pain behaviors. Thus, according to the operant conditioning mode, pain behaviors may continue in the absence of nociceptive stimulation. (p. 223)

The reinforcers provided by the injured workers' compensation system also may contribute to the maintenance of pain behaviors.

The behavioral approach attempts to change the overt reinforcers that maintain maladaptive pain behavior. This approach has been proven effective in hospital-based programs where reinforcers were carefully managed.

Fordyce and his colleagues (1973) published the results of a large-scale study with a group of chronic pain patients. Patients received between 4 to 12 weeks of inpatient treatment with an operant approach emphasis. The authors reported significant reductions in the report of pain,

medication intake, interference with activities of daily living, and time spent reclining. However, Turk and Genest (1979) raised concerns about potential selection biases and the lack of a control group in this study.

Kerns, Turk, Holzman, and Rudy (1986) compared operant behavioral treatment with cognitive-behavioral treatment for chronic pain and found significant reductions for both treatments of patients' use of health care resources. Turner and Clancy (1988) also compared operant behavioral treatment with cognitive-behavioral treatment for a group of 81 patients with lower back pain. The operant behavioral patients exhibited greater pre- to posttreatment improvement, with both patient groups remaining significantly improved at a 12-month follow-up.

Most behavioral treatments also involve an exercise component with therapist praise for patient attainment of exercise quotas. This approach has been shown to result in increased patient activity levels (Anderson, Cole, Gillickson, Hudgen, & Roberts, 1977; Cairns, Thomas, Mooney, & Pace, 1976; Fordyce, Fowler, Lehmann, & DeLateur, 1968; Fordyce et al., 1973). A combination of behavioral therapy and exercise was used by Turner, Clancy, McQuade, and Cardenas (1990) with 96 outpatients. They found the behavioral therapy and exercise combination to be more effective than behavioral therapy or exercise alone.

More recent investigations of the behavioral model for management has focused on social reinforcers such as spouse behavior. Romano, Turner, and Jensen (1992) found that spouses' solicitous behaviors were significantly more likely to precede and follow nonverbal pain behaviors and that nonverbal pain behaviors had a significantly higher association with aggressive behaviors in a group with pain when compared to a control group. The use of this model in nonhospital settings with spouses and groups has expanded its utility.

Cognitive-Behavioral Treatments

During the late 1970s and the early 1980s, a number of researchers applied cognitive-social learning theory and cognitive-behavioral interventions to the treatment of pain (e.g., Bakal, Demjen, & Kaganov, 1981; Holroyd, Andrasik, & Westbrook, 1977; Randich, 1982; Turk & Genest, 1979). Therapeutic regimens were developed by Turk and his colleagues (e.g. Meichenbaum & Turk, 1976; Turk, 1978; and Turk, Meichenbaum, & Genest, 1983). These interventions consist of three interrelated phases. The initial, conceptual phase provides patients with a new perspective for understanding the nature of their pain experience, emphasizing the influence of thoughts and feelings on the perceptions of pain and resulting suffering. Researchers have shown that patients who negatively interpret their

experience of pain are more severely disabled (Smith, Follick, & Aherns, 1986).

The second phase consists of teaching a number of behavioral and cognitive coping skills (e.g., the gate control theory and the influence of cognitive and affective input in the pain experience) (Melzack, 1973; Melzack & Wall, 1965). In this phase, patients are taught to view the pain process as developmental, and they are encouraged to formulate a plan to deal with escalating pain (Kerns, Turk, & Holzman, 1983). In the final phase of the cognitive-behavioral approach, patients practice coping skills through imagery, rehearsal, role-playing, and other behavioral techniques. Turk, Michenbaum, and Genest (1983) postulated that the cognitive-behavioral approach is effective because it provides patients with a sense of control over their pain experience.

The cognitive-behavioral approach has been used effectively in the treatment of several types of acute clinical pain (e.g., Langer, Janis, & Wolfer, 1975; Wells, 1982; Picket & Clum, 1982). There have been mixed results regarding the benefits of using cognitive-behavioral techniques for painful medical procedures such as dressing changes with burn patients (Wernick, Jaremko, & Taylor, 1981), cardiac catheterization (Kendall, 1979), and knee arthrogram (Tan & Poser, 1982).

Cognitive-behavioral strategies have been applied to many different chronic pain syndromes, most commonly headache pain (Turner & Romano, 1990). Anderson, Lawrence, and Olson (1981) compared autogenic relaxation, cognitive coping-skills training, and a combination of the two, resulting in an approximately equal reduction in headache activity for all conditions. Bakal et al. (1981) utilized coping skills training, EMG biofeedback, and relaxation and found significant reductions in duration and intensity of headaches, and these reductions were maintained at follow-up. Coping-skills training and EMG biofeedback were compared by researchers Holroyd and Andrasik (1982) in a study of 19 headache sufferers. The coping-skills group reported and maintained significant headache reduction up to 2 years following the study.

Cognitive-behavioral approaches also have been used successfully in the treatment of lower back pain (which is a significant problem in workers' compensation injuries). Turner (1982) compared cognitive-behavioral therapy, including relaxation training, to a relaxation-training-only group and found both groups had a significant improvement in pain and management when compared with controls. Moore and Chaney (1985) compared a cognitive-behavioral treatment for groups with and without spouse involvement, with both groups reporting significant improvement when compared to a control group.

Turner and Jensen (1993) investigated the effects of an outpatient cognitive therapy group with and without relaxation training on 102 chronic low-back-pain clients. Pain intensity decreased significantly in all treatment groups but not in the control group.

Cognitive-behavioral interventions have been used successfully in multidisciplinary programs (with patients experiencing significant physical and emotional dysfunctioning) and more recently in outpatient settings (Basler, 1993; Turner & Clancy, 1988, Turner & Romano, 1989).

Biofeedback

Biofeedback therapy has been used extensively in the treatment of chronic pain syndromes, particularly with muscle tension, migraine headaches, and temporomandibular joint pain (TMJ) (Blanchard & Ahles, 1990). Biofeedback treatments utilize electronic instruments that detect and amplify biologic responses to provide patients with physical information normally outside of conscious awareness, which can allow an individual to learn to alter physiological responses. This creates an opportunity to alter the physiological response to pain.

> Biofeedback has been hypothesized to have a "direct" effect on the physiological basis of the pain experience (e.g., electromyographic feedback to reduce frontalis muscle tension in muscle contraction headache patients; temperature feedback to reduce cranial blood flow and arterial dilation in vascular headache patients). (Kerns et al., 1983, p. 17)

Early investigations of the effectiveness of biofeedback in the treatment of migraine headaches have been discouraging (e.g., Beasley, 1976; Blanchard, Theobald, Williams, Silver, & Brown, 1978). However, subsequent studies have shown that frontal EMG biofeedback, either with or without relaxation training, for migraine headaches is superior to having patients merely monitor headaches in a no-treatment condition (Holroyd, Andrasik, & Noble, 1980; Martin & Mathews, 1978).

Biofeedback also has been used in the treatment of low back pain. This treatment is based on the premise that elevated levels of muscular tension in the paraspinal musculature contribute to lower back pain (Freeman, Calsyn, Paige, & Halar, 1980). In a study of 111 chronic low-back-pain patients, Keefe, Block, Williams, and Surwit (1981) reported decreased pain in 30%, decreased medication use in 49%, and increased activity levels in 63% of the patients.

Additionally, biofeedback has been used with positive results to treat such diverse pain problems as neck and shoulder pain (Large & Lamb, 1983), temporomandibular joint (TMJ) syndrome (Moss, Wedding, & Sanders, 1983), rheumatoid arthritis pain (Wickramasekera, Trong, Bush, & Orr, 1976), and cancer pain (Fotopolos, 1983).

Hypnosis

The treatment of physical conditions by suggestion and hypnosis has a long history. An Austrian physician, Franz Anton Mesmer, has been recognized as the "father of hypnosis"

and was responsible for the transition from metaphysical to natural explanations of what we now know as hypnosis. Mesmer treated physical disorders successfully with what he explained as "animal magnetism." He was credited as being the first to attempt to understand and explain the phenomenon of suggestion. His work was noticed by the European medical community, and the use of hypnosis in medical procedures spread.

Early medical applications for hypnotherapy focused on its use as a surgical anesthetic. In 1846, an English surgeon used hypnoanesthesia in a variety of major surgeries (Esdaile, 1957). James Braid investigated mesmerism and postulated a relationship with the nervous system. He was the first to use the term "hypnosis" (Hilgard & Hilgard, 1983).

There has been varying support and utilization of hypnosis in the early 20th century. However, during the 1950s the American and British medical associations approved the use of hypnosis for clinical treatment.

There have been two fundamental approaches to understanding the phenomenon of hypnosis. These views are designated as state and nonstate theories of hypnosis. State theorists postulate that the characteristics of a hypnotized person involve a shift in cognitive functioning and a change in consciousness (Hilgard, 1977; Orne, 1959). Nonstate theorists argue that hypnosis is not the result of altered

consciousness but arises from situational cues and role playing (Barber, 1969; Sarbin & Coe, 1979). They theorize that hypnotized persons act as a result of complex social variables (e.g., expectancy, imitation, capitulation, etc.).

Researchers during the past 30 years have verified the efficacy of hypnosis in reducing or eliminating a variety of experimentally generated pains, including ischemic, cold pressor, electric, and thermal (Barber, 1990). Hilgard and Hilgard (1983) claimed that hypnotic pain control is superior to other psychological methods. However, other pain management researchers dispute this claim (Turner & Romano, 1989).

Hypnosis has been used effectively in the treatment of a wide variety of pain problems, including acute pain, postburn pain, dental pain, and chronic painful conditions such as migraine and cancer pain (Barber, 1990). This treatment modality thus uses the power of suggestion to decrease the sensation and perception of pain.

Psychotherapy in the Management of Pain

Unlike the other counseling and psychological interventions discussed above, a more traditional psychotherapy is sometimes required in the management of pain. This approach focuses on emotional or deeper underlying problems rather than behaviors, thought patterns, or specific symptoms. Chapman (1990) suggested that this intervention is "better suited than other approaches for

dealing with cases in which the pain seems to follow from a psychiatric disorder and environmental contingencies cannot be demonstrated" (p. 1701). This approach is concerned with psychogenic conditions, that is, where underlying personality problems may significantly affect an individual's response to real or perceived pain.

This approach is less concerned than the other interventions with the relief of pain symptoms. Instead, the goal is to achieve major adjustments in personality, relationships, and/or life goals. This intervention strongly emphasizes the role of a supportive therapeutic relationship. Accordingly, supportive psychotherapy is one of the possible forms of this intervention, along with dynamic psychotherapy, family therapy, and group therapy (Tunks & Merskey, 1990).

Supportive psychotherapy allows the establishment of a caring relationship that may be absent in the other professional and personal interactions in a client's experience and treatment of pain. Psychotherapists using dynamic psychotherapy attempt to assist their clients in gaining insight into unconscious thought processes that influence their response to pain (Tunks & Merskey, 1990). Family therapy attempts to assist the client and his or her family in adjusting to the disruptive effects of pain and the concomitant problems such as unemployment, financial complications, and sexual difficulties. Group therapy allows

the client to interact with other indiviudals also suffering from the effects of chronic pain (Tunks & Merskey, 1990).

## Workers' Compensation

### History of Workers' Compensation

Care for injured workers is an ancient practice with roots in Rome and Greece. It was a generally accepted practice that masters were responsible for the health and physical conditions of their servants. During the Middle Ages, soldiers injured in the service of noblemen returned to their lords for food and care while they recuperated (Oberman, 1965). While servants and soldiers expected care from their masters, their claim for this care was a moral obligation and rarely became a legal issue.

Our contemporary system of caring for injured workers can be traced to Germany and Great Britain. Prior to the industrial revolution, businesses typically operated on a small scale, with employees and employers often working together. The industrial revolution and mass production dramatically changed the nature of business, bringing about a subsequent increase in the extent and frequency of worker injuries (Rasch, 1985). Michael Perlin (1985) described an early German workers' compensation law:

> In 1838, Prussian liability law--a law requiring railroad companies to provide compensation to employees for industrial accidents--was the first "modern" step in the care of disabled workmen made necessary by the change in conditions brought about by modern industrial methods. (p. 853)

In the United States, New York became the first state to pass significant workers' compensation legislation when it became apparent that common law (i.e., negligence liability) was not sufficient for social needs. Early legal recourse in the United States for workers was a system based on negligence, which placed an undue burden on the employee; it became apparent this system was not responsive to the needs of injured workers (Rasch, 1985).

As the moral and social needs for a better system crystallized, the theory of "trade-off benefits" arose. This trade-off represents a compromise between the needs of the injured worker and the employer. James McConnaughhay (1994) described this aspect of the current workers' compensation law:

> Employers agree to pay for all work-related injuries to their employees, regardless of fault, and, in return, employees agree to give up their right to sue their employers for negligence related to those injuries. (p. 1)

Most workers' compensation laws today represent an exclusive remedy for injured workers. Employees, with few exemptions, are barred by law from suing their employers and must rely on the workers' compensation system for medical care and wage replacement benefits.

The philosophy of the workers' compensation system is to prevent injured workers from becoming dependent on welfare agencies. This system provides a safety net approach to care for workers and their dependents by

including the cost of work-related injuries in the cost of goods and products. Authur Larson (1986) described the system as a

> mechanism for providing cash-wage benefits and medical care to victims of work-connected injuries, and for placing the cost of these injuries ultimately on the consumer, through the medium of insurance, whose premiums are passed on in the cost of the product. (p. 2)

Workers' Compensation Epidemic

Workers' compensation is a significant expense in today's marketplace. Despite efforts to contain costs, expenditures for injured workers have continued to rise at an alarming rate. Darling-Hammond and Kniesner (1980) evaluated the national cost to employers for workers' compensation during the 1970s and found that costs rose from $4.9 billion in 1970 to $11 billion in 1976 and to $15.8 billion in 1978.

In Florida, workers' compensation insurance premiums began to increase significantly in 1983; in 1988 there was a 28.8% increase, which was followed in 1990 by an additional 36.7% rate increase (McConnaughhay, 1994). For example, premiums for a roofing company in Florida (a statistically high-risk industry) have been assessed at $48.53 per $100 of payroll in 1993. Thus, a company with an annual payroll of $100,000 would pay $48,530 in workers' compensation insurance premiums for the year.

Not only have compensation costs risen, but the number of claims filed also has increased. Randy Crowson, a supervisor in Florida's Division of Workers' Compensation,

indicated that the average cost per case in Florida had risen from $7,464.00 in 1983 to $10,334.00 in 1988, an increase of 28% (personal communication, December 8, 1993). This mirrored a 30% increase in reported total benefits paid to injured workers for the same period.

Worral and Butler (1985) found that approximately 81% of the claims for 1981 were for medical benefits only (i.e., no lost work time), and these accounted for 6% of the compensation expenses. Those injured individuals with "lost time" due to injury represented 14% of all claims, but medical treatment and wage replacement for these individuals accounted for 77% of insurance costs. Many of these individuals remain away from work and are involved in the medical system for years. Injured individuals in a minor disability category had an average claim cost of $8,833 and accounted for 18% of the total expense. Individuals with major disabilities had an average claim expense of $62,031, which accounted for 45% of the total expense. Less than 1% of the injured workers were injured so severely that they were unable to return to work; they had an average claim cost of $137,099, which accounted for 10% of the total expense (Worral & Butler, 1985).

Researchers have documented that injured workers receiving compensation do not respond as favorably to medical treatments as noncompensation cases (i.e., Finneson, 1977; Flynn & Hogue, 1979; Slepian, 1966; Waddell et al., 1979;

Warfield & Crews, 1987). A number of studies with carefully matched patient factors have supported the view that outcomes are not as positive for those receiving compensation (Walsh & Dumitru, 1991). Hudgin (1974) matched 73 back-injury patients receiving compensation with 73 patients who were noncompensated. When patients were matched on personal and symptom factors, Hudgin found that the compensation patients reported only one-third of the positive results and four times more poor outcomes. One year after surgery, all noncompensation patients had returned to work, while only 77% of the compensation patients were working; ongoing pain was a problem for three times more compensation patients than noncompensation patients.

Similarly, Warfield and Crews (1987) compared 161 compensation and noncompensation patients with lumbar radiculopathy (disease or injury of the nerve root) who underwent epidural steroid injections intended to decrease pain. At follow-up, 52% of those receiving compensation reported improvement in pain levels, while 68% of the noncompensation patients reported positive results.

Several researchers also have shown that workers took longer to return to work than those injured in nonwork situations (Sanders & Meyers, 1984). Worral and Appel (1987) considered a number of studies that evaluated data from the National Council on Compensation Insurance which related the number of lost work days with workers' compensation-covered

lower back injury. The level of benefits affected the duration of injury-related lost time. Worral and Butler (1985) estimated that a 10% increase in compensation benefits corresponded to a 2- to 5-day increase in lost work days.

The influence of compensation on injury recovery time also has been examined. In a 5-year retrospective study of the railroad industry, Sanders and Meyers (1984), after matching for type of injury, found the average work loss after back injury was 14.2 months for on-the-job injuries and 4.9 months for non-work-related injuries. Walsh and Dumitru (1991) concluded that "economic incentives are inherent in the workers' compensation program, and it appears that the average worker responds to such incentives" (p. 226).

Such findings have significance for this research since compensation clients experiencing difficulties with traditional medical treatment may be referred for counseling and psychological interventions. The status of compensation thus raises the issue of secondary gains as a possible significant influence in counseling interventions.

Secondary Gains

Typically, an injured or ill individual experiences reduced responsibilities at work and at home, with increased personal attention from other family members. "One declared sick by a physician is excused from responsibilities as spouse, parent, and wage earner and is cared for by others" (Gildenberg & DeVaul, 1985, p. 19).

Reduced responsibilities are an appropriate response to an injury to allow healing time for recovery. However, many individuals find it difficult to relinquish these privileges of being sick and adapt readily to the sick or disabled role. Keefe and Brown (1982) included attention, sympathy, and financial compensation and other forms of "rewards" contingent on pain behavior in their definition of secondary gains. Gildenberg and DeVaul (1985) noted that secondary gains are an important variable in patient recovery. Unlike malingering, which is a conscious attempt to remain in a patient role, secondary gains are usually unconscious motivators (Taylor, Golter, Golter, & Backer, 1985). Health professionals in the fields of rehabilitation, medicine, and psychiatry are aware of the implications of secondary gains in the healing and recovery process.

Melzack and Wall (1965) proposed the gate-control theory of pain, which includes psychological, social, and cultural factors as part of the pain experience. This theory suggests that there is not a one-way flow of neural information (as previously conceptualized) from the site of the injury to the brain but rather a two-way neural communication which allows psychological and social factors to affect the pain experience.

This inclusion of psychological and social factors into the experience of pain and injury has encouraged researchers such as Weighill (1983) to discuss the concept of

"compensation neurosis." Compensation neurosis is an attempt by medical professionals to explain patient treatment resistance or lack of expected physiological response to traditional medical treatment by those involved in litigation or otherwise receiving financial gain.

Many early theorists related psychological problems resulting from physical injury strictly to organic factors. Erichen (1866) and Oppenheim (1889), in an attempt to explain early workers' compensation railroad physical injuries with significant emotional involvement, linked the emotional problems with the physical injury. However, their theories failed to account for the relationship of the emotional problems with the severity of the injury. More recently, there has been renewed interest in a strictly organic explanation (Kelly, 1981; Kelly & Smith, 1981; Trimble, 1981) with a focus on posttraumatic physiological factors.

Other theorists have rejected the purely organic explanation of psychological problems with pain by considering various other psychological factors. These various factors have been interpreted by diverse theoretical perspectives. Authors with a psychoanalytical approach have explained the phenomenon as personal predisposition (Grinker, 1945; Modlin, 1967). Robitscher (1971) indicated that "compensation neurosis," unlike true "traumatic neurosis," occurs only in predisposed patients. Hirschfeld and Banbehan (1963) have stressed premorbid factors as crucial and view

the physical injury as "part of the psychological process" (p. 194). In contrast, Miller (1961) viewed the problem of compensation neurosis as a direct result of the positive reinforcement of secondary gains inherent in workers' compensation. He cited factors such as low work satisfaction and poor employee attitude toward social and work responsibilities.

More recent theorists tend to emphasize less of the strictly personal aspects and focus on broader, more complex issues.

> Most now agree that the problems must be seen in terms of a variety of secondary gains (not just financial) along with a whole array of interacting physical, employment, psychological, social and cultural factors. (Weighill, 1983, p. 98)

Differences in perspective tend to cluster around the emphasis placed upon family and secondary gain elements (Balla & Moraitis, 1979; Ellard, 1970; Parker, 1976), poor work habits, and low job security (Cole, 1970; Salfilos-Rothschild, 1970), iatrogenic factors (e.g., inappropriate medical treatment) (Braverman, 1977; Cole, 1970; Field, 1981), and poor employee ratings by supervisors (Bigos, Spengler, & Martin, 1986).

Walsh and Dumitru (1991) indicated that

> most current evidence suggests that the system of disability compensation in the United States does increase the frequency of certain types of disability claims and contribute to delayed recovery. (p. 232)

This is not to suggest that treatment is futile, as workers' compensation patients often improve and recover (Cairns, Mooney, & Crane, 1984; Mendelson, 1986; Trief & Stein, 1984). However, Mendelson (1986) noted that most of these individuals do not return to their preinjury employment status.

## Theoretical Framework

### Cognitive-Behavioral Theory

The theory underlying this study was addressed briefly in Chapter I. A more elaborate explanation is given here. In the last two decades, behavioral scientists have questioned the adequacy of the simple learning theory model. Simple stimulus-response explanations often do not satisfactorily explain the mediating effects of cognitive processes (Bandura, 1977; Ellis, 1962). Stimulus-response explanations do not sufficiently address the influence of thoughts and appraisals upon an individual's behaviors and responses. With this recognition of the importance of cognitive factors, new approaches have been developed that include the cognitive process in a broader behavioral theory (Bandura, 1977; Beck, 1976; Ellis, 1962).

The basic assumption of the cognitive-behavioral approach is that behaviors and cognitions are interrelated. While there is no standardized format for this approach, there appears to be general agreement on the following principles:

1. Perception and experience are active (rather than passive) processes.

2. An individual's cognitions are a synthesis of internal and external stimuli.

3. Cognitions comprise a person's view of him/herself, the world, and the future.

4. Cognitions often are responsible for an individual's emotional state.

5. Similarly, behavior has a notable influence on an individual's emotional state.

6. An individual can become aware of his cognitive distortions; the purpose of therapy is to facilitate such awareness.

7. Modification of a client's underlying beliefs can lead to cognitive, emotional, and behavioral changes (Turk & Rudy, 1989).

Beck et al. (1979) developed the concept of the cognitive triad, which concerns an individual's thoughts about himself or herself, the world and daily experiences, and the future. A client's problems usually pertain to one or more of these three areas. Specific emotions and behaviors often stem from the corresponding views of self, the world, and the future. For example, if a client feels the future will be as unrewarding as the present, the subsequent sense of hopelessness can impede efforts for self-improvement. Accordingly, the general manner in which an

individual thinks of himself or herself, the world, and the future will greatly influence subsequent actions, expectations, projects, and emotions.

This general manner of individual cognitive orientation usually is addressed by the notion of schemas. This notion is used to explain how an individual maintains unique and consistent attitudes, emotions, and behaviors. Beck et al. (1979) described the composition of schemas as follows:

> Any situation is composed of a plethora of stimuli. An individual selectively attends to specific stimuli, combines them in a pattern, and conceptualizes the situation. Although different persons may conceptualize the same situation in different ways, a particular person tends to be consistent in his responses to similar types of events. Relatively stable cognitive patterns form the basis for the regularity of interpretations of a particular set of situations. The term "schema" designates these stable cognitive patterns. (p. 12)

Schemas function as "rules of life" serving to increase or decrease an individual's response to various situations. For example, an individual with a schema of self-deprecation will tend to view events and interactions in a manner consistent with that schema. As Beck et al. (1979) hypothesized, the more compelling the schema, the more probable that an individual will respond to it. Schemas can generate automatic thoughts, emotions, and behaviors. An individual evaluates and categorizes various experiences through a "matrix" of schemas (Beck et al., 1979).

The cognitive organization may become independent of external stimulation so that an individual becomes less

responsive and more flexible to environmental changes, i.e., schemas can become automatic and resistant to environmental input. Some of these automatic schemas distort and oversimplify information. Freeman and Zaken-Greenberg (1989) listed some of the commonly occurring distortions as follows:

1. All-or-nothing thinking
2. Mind reading
3. Emotional reasoning (e.g., "Because I feel inadequate, I am inadequate")
4. Personalization
5. Overgeneralization
6. Catastrophizing
7. Should statements
8. Objectifying the subjective (e.g., "I have this belief that I must be funny to be liked, so it is a fact")
9. Disqualifying the positive
10. Perfectionisms

Treatment Using Cognitive-Behavior Therapy

One of the primary goals of cognitive-behavioral therapy is to correct these distorted and "primitive" ways of thinking in order to create more balanced and "mature" thinking (Beck et al., 1979). Whereas primitive thinking is one-dimensional, global, absolutistic, moralistic, invariant, and irreversible, mature thinking is, on the other hand, multidimensional, relativistic, and nonjudgmental, with variability and reversibility (Beck et al., 1979).

Cognitive-behavioral therapy is a short-term, active, structured, directive, and problem-oriented intervention. It typically utilizes a broad range of behavioral and cognitive techniques in order to change erroneous thinking, negative emotions, and maladaptive behaviors.

Turk and Rudy (1989) identified seven treatment objectives of the cognitive-behavioral approach. They consider the primary treatment objective to be changing the clients' views of their problems from overwhelming to manageable. Often, clients begin therapy in a demoralized state; the primary goal of the intervention then is to instill a sense of manageability and hope. Another treatment objective is the enhancement of outcome efficacy, i.e., clients must be convinced that treatment will include the skills that are necessary to improve their condition. Consequently, treatment must foster a sense of self-efficacy, which involves the clients' reconceptualization of themselves from being passive, helpless, and reactive to active, competent, and resourceful.

Another treatment objective concerns cognitive restructuring, where a client learns to monitor thoughts, feelings, and behaviors, and their interrelationships. This cognitive restructuring changes the automatic maladaptive schemas (as described above) to more effective cognitions. Techniques such as Albert Ellis's (1962) ABC method of thought monitoring are included in this stage. Another

important treatment objective concerns skills training, where clients are taught how and when to employ the necessary overt and covert behaviors required for adaptive responses to problems (Turner & Romano, 1990). Skills training includes attention-diversion techniques and relaxation exercises to counter maladaptive stress responses. The final treatment objectives are the encouragement of clients to attribute success to their personal efforts, and the anticipation of new problems, which can serve to facilitate maintenance and generalization (Turk & Rudy, 1989).

Turner and Romano (1990) identified a number of factors concerning treatment efficacy of the cognitive-behavioral approach, which include compliance with homework assignments, therapist characteristics, client characteristics, and client setbacks during and after treatment (e.g., new physical, social, or economic problems).

Cognitive-behavioral treatment approaches have been used in the treatment of a range of diverse client problems. While this treatment has a significant research and treatment history with depression and anxiety (Beck, 1967; Beck et al., 1979; Beck, Emery, & Greenberg, 1985; Freeman & Dattilio, 1992), it has also been used extensively in the treatment of general mood disorders (Beck, 1967), suicidal behaviors (Freeman & Reineke, 1993), personality disorders (Beck, Freeman, & Associates, 1990; Freeman & Leaf, 1989; Layden, Newman, Freeman, & Byers-Morse, 1993), and pain management

(Turk et al., 1983; Turk & Rudy, 1989; Turner & Romano, 1989; Turner & Romano, 1990).

Depression in Cognitive Behavior Therapy

The concept of depression in this current research corresponds to its description as given in the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R) (American Psychiatric Association, 1987). Depressive symptoms include (but are not limited to) depressed mood, markedly diminished interest or pleasure in daily activities, insomnia or hypersomnia, feelings of worthlessness or excessive guilt, and recurrent thoughts of death or suicidal ideation (American Psychiatric Association, 1987).

Cognitive-behavioral theory typically categorizes depressive symptoms as follows:

1. Emotional symptoms (such as crying spells, dejected mood, and overall sadness). This is the common view of depression.

2. Cognitive symptoms (such as excessive self-criticism and low self-evaluation). An individual often blames himself or herself and can ruminate constantly about personal shortcomings or failures. Beck and his colleagues (1979) described a treatment for this aspect of depression and argued that depression arises from a negative view of self, the world, and the future (i.e., the cognitive triad).

3. Behavioral symptoms (such as low motivation, avoidance, withdrawal, and low energy). The individual may

find it increasingly difficult to accomplish simple tasks and may remain at home.

4. Physical symptoms (such as sleep disturbance, loss of appetite, and loss of sex drive). The individual may sleep much of the time or very little. The individual's physical rhythms are disrupted.

The three categories of causes for depression are typically identified as reactive, endogenous, and biochemical. Biochemical depression results from physiologic causes (e.g., a hormonal imbalance). Endogenous depression is usually longer-term depression that appears to lack a specific overt cause. This depression often results from deep-rooted childhood or family issues. Reactive depression, on the other hand, results from a reaction to overt causes and typically is a response to loss or disappointment. Most subjects in this research suffered from reactive depression since they were adapting to physical loss or injury. While endogenous and biochemical causes of depression also were involved in our subjects' depression, reactive depression was a common causal agent in most subjects.

Cognitive-behavioral theory emphasizes the cognitive component of depression. Several patterns of thinking relevant to depression can be identified (Golden, Dowd, & Friedberg, 1987). Depressive cognitions are classified according to whether they involve self-condemnation, hopelessness, or self-pity.

The pattern of hopelessness was of particular interest here since this research measured levels of hope. Hopelessness can increase depression when situations are perceived as hopeless (Beck, 1967). Such individuals often give up when there appears to be less chance to improve the situation. This gives them more reason to feel depressed, which leads to a "maladaptive spiral" or a self-fulfilling prophecy of failure (Golden et al., 1987, p. 32).

Cognitive-behavioral treatment of depression focuses upon an individual's underlying faulty assumptions and schemas. The identification of dysfunctional and negative assumptions is a collaborative endeavor between the counselor and client. Clients benefit from taking an active role in recognizing and correcting their self-defeating cognitions since a passive role has less impact and a reduced chance of being generalized to future situations.

Beck and his colleagues (1979) suggested that the identification of basic dysfunctional assumptions occurs in three stages. In the first stage, the individual recognizes and reports personal automatic thoughts. The second stage involves identifying general themes derived from automatic thoughts, and the final stage concerns "delineating or formulating the patient's central rules or equations about his life" (Beck et al., 1979, p. 247).

The identification of an individual's dysfunctional assumptions and schemas is the first step in modifying them.

As Beck and his colleagues (1979) asserted, once the assumptions are verbalized and are no longer hidden, individuals often immediately see their maladaptiveness. The most effective way of modifying maladaptive assumptions is to have the client, rather than counselor, propose counter-arguments and alternative assumptions. The counselor's challenges to the client's patterns of thinking should be presented as questions and suggestions for alternative assumptions (rather than in a lecture or didactic format).

For example, a depressed individual's cognitive error of "catastrophizing" may involve the assumption of a constant expectation of the worst possible outcome. The modification of this faulty assumption involves the client's consideration of realistic probabilities and, for example, considering instances when the worst did not occur.

A recurrent theme in depressive thinking is an over-reliance upon "shoulds" and rigid rules of living. Depressed individuals often evaluate themselves by how they should be or feel and subsequently view themselves as inadequate in comparison to these rules and standards. Once again, the client is challenged to evaluate objectively these cognitions and their consequences.

Often an individual is hesitant to disregard dysfunctional assumptions and schemas, believing something important will be lost. Although the individual will recognize the advantage of modifying these beliefs, the

disadvantages of change initially appear greater. Beck and his colleagues (1979) asserted that "many depressed people structure their world as a no-win trap with the disadvantages on both sides of an issue outweighing any possible advantages" (p. 262). Thus, a standard procedure in this situation is to have the client list the advantages and disadvantages of a particular assumption or behavior. Beck (1976) claimed that this technique, while appearing to be overly simple, has proven to be one of the most effective procedures in the long-term modification of maladaptive assumptions and schema.

Behavioral interventions also have a place in the modification of faulty assumptions and schemas as the individual is encouraged to challenge habitual assumptions in the course of daily experience. Acting against an assumption has proven to be a powerful way to change it.

Hope in Cognitive-Behavior Therapy

The cognitive triad, as discussed above, links an individual's sense of hopelessness to depression. A hopeless, negative view of the future is conducive to depression. On the other hand, hope is expected to be negatively related to depression, and researchers have, in fact, documented a negative correlation (Snyder et al., 1991).

Hope is characteristically defined as a belief that a desired outcome may occur. Recent discussions of hope have

supported this basic definition with an emphasis upon goals. Snyder et al. (1991) argued that this view treats hope as a unidimensional construct, i.e., hope is the overall perception that goals can be accomplished. In contrast, Snyder et al. (1991) proposed a bidimensional conceptualization of hope that involves both a conceptualization of goals and a conceptualization of the means by which goals are pursued. That is, an individual can lack hope if the pathways of goal attainment are unknown. Accordingly, Snyder et al. (1991) stated,

> Within a goal-setting framework, we propose that there are two major, interrelated elements of hope. First, we hypothesize that hope is fueled by the perception of successful agency related to goals. The agency component refers to a sense of successful determination in meeting goals in the past, present and future. Second, we hypothesize that hope is influenced by the perceived availability of successful pathways related to goals. The pathway component refers to a sense of being able to generate successful plans to meet goals. More formally, hope is defined as a cognitive set that is based on a reciprocally derived sense of successful (a) agency (goal-directed determination) and (b) pathways (planning of ways to meet goals). (p. 570-571)

These two components of hope, while related, are not synonymous. In Snyder's view, the adage "Where there is a will, there is a way" is not necessarily accurate. Individuals often have a sense of a successful goal-directed agency (the will), yet may lack the pathway to obtain the goals (the way). Snyder asserted that both agency and pathway are necessary but neither alone is sufficient to maintain hope.

It may be clarifying at this point to contrast Snyder's view of hope with Bandura's theory of self-efficacy (Bandura, 1977; Bandura, 1982; Bandura, 1986). While Bandura (1989) recognized the importance of both efficacy (i.e., agency) and outcome (i.e., pathways) expectancies, he emphasized self-efficacy as the most powerful expectancy for eliciting goal-directed behavior. Snyder et al. (1991) disagreed with Bandura's overemphasis on self-efficacy due to the reciprocal action of efficacy expectancies and outcome expectancies. He postulated that reliance on only one of the expectancies lessens the

> predictive impact of the cognitive set on subsequent goal-related activities. Furthermore, from Bandura's perspective, judgments of self-efficacy refer to specific assessments of how well one will perform a particular task in a particular setting. In contrast, hope is conceptualized as a more general cognitive set that applies across particular settings and, as such, hope may yield a wider range of goal-related predictions. (Snyder et al., 1991, p. 572)

Since hope is a general cognitive set that is future-oriented, this analysis of hope corresponds to the cognitive triad concept. The reader is asked to recall that the cognitive triad proposes that cognitions typically involve a self, world, or future focus. Consequently, hope corresponds to the latter component of the triad. Thus, from a theoretical standpoint, an inverse relationship of hope and depression, as described above, is a cognitive set that is also (negatively) future-oriented.

Snyder's conceptualization of hope not only corresponds to the cognitive-behavioral theory but also can correspond to a cognitive-behavioral treatment approach. More specifically, the agency aspect of hope can correspond to the cognitive aspect of treatment, and the outcome (pathway) aspect of hope may relate to the behavioral component of treatment.

# CHAPTER III
# METHODOLOGY

Differential receptivity to treatment between compensation and noncompensation chronic pain clients was investigated in this study. Specifically, levels of depression and hope were assessed as a response to a short-term cognitive-behavioral intervention. A review of the literature suggested that patients who receive compensation do not respond as favorably to traditional medical interventions as do noncompensation patients (Burk, 1976; Fishbain et al., 1988; Hammonds et al., 1978; Raaf, 1959). Accordingly, it was expected that counseling and psychological interventions would have less impact upon compensation clients. In this study, levels of hope and depression were measured to assess the differential response.

## Research Design

A two-by-three factorial design was used in this study. Because this study analyzed receptivity to treatment as affected by compensation status, compensation and noncompensation comprised categorical variables. The dependent variables, hope and depression, were assessed on three occasions: pretreatment, midtreatment, and at the completion of treatment. No control group was included because differential response by compensation status was the

focus of this research rather than efficacy of the cognitive-behavioral treatment.

## Research Hypotheses

The following null hypotheses were addressed in this study:

1. There are no pretreatment statistically significant differences in levels of hope for compensation and noncompensation clients.

2. There are no pretreatment statistically significant differences in levels of depression for compensation and noncompensation clients.

3. There are no statistically significant differential treatment effects in levels of hope for compensation and noncompensation clients.

4. There are no statistically significant differential treatment effects in levels of depression for compensation and noncompensation clients.

5. There is no statistical difference in retention rate during the treatment period for compensation and noncompensation clients.

6. There is no statistical difference following treatment in the relationship of hope and depression for compensation and noncompensation clients.

## Population

The population of interest for this study were adults experiencing chronic pain. It has been estimated that 14.4%

of the general population suffer from chronic pain, and an additional 7.4% experience some type of ongoing pain (Miller, 1973). The sample for this study was drawn from among residents of northern Florida and include individuals over 21 years of age who were experiencing chronic pain resulting from a nonmalignant source.

Alachua County and the seven surrounding counties have a total population of 552,469 (Bureau of the Census, 1990). Randy Crowson, a supervisor in the State Division of Workers' Compensation, reported that a total of 3,080 workers' compensation accidents resulted in lost work days in 1992 for this geographic area (personal communication, December 8, 1993). Individuals receiving workers' compensation are usually in this system for several years. Thus, at least 12,000 individuals in the area were currently receiving workers' compensation benefits.

## Sampling

The subjects for this study were a volunteer sample of adults experiencing chronic pain. Their treating physicians informed the patients of this study. The compensated individuals in this study were comprised of those receiving or entitled to workers' compensation benefits.

Sixty-two individuals experiencing chronic pain was the sample size for this study. The sampling procedure provided 32 workers' compensation and 30 noncompensation subjects. This number was selected based upon power studies that

indicated multiple regression studies (with one continuous and one categorical variable) require approximately 20 to 30 subjects per group as essential for identifying moderate effects (Cohen, 1968). The sample was drawn from individuals who were experiencing chronic pain and were identified by local physicians in north-central Florida. The resultant sample consisted of a heterogeneous group of individuals who suffered from, for example, headaches, migraines, cervical pain, shoulder-arm pain, and low back pain.

The subjects were randomly assigned to six treatment groups composed of 8 to 14 members each. Each group was randomly comprised of approximately equal numbers of compensation and noncompensation subjects without regard to physical injury or gender. Group leaders were not aware of each subject's compensation status.

Group size is an important issue in psychoeducational treatments. Jacobs, Harvill, and Massion (1988) reported that educational groups usually are effective with 12 members, while 15 members is an appropriate size for mutually sharing groups. Accordingly, group size in this research ranged from 8 to 14 subjects.

As noted, potential volunteers for the study were identified by their treating physicians for inclusion in the study. Inclusion was based on a subject's medical history and his/her current treatment plan. Referring physicians were supplied with a letter describing the proposed

intervention and the researcher's qualifications (Appendix A). The physicians then mailed or gave a letter of invitation (Appendix B) to patients they considered to be appropriate for inclusion in this study. Individuals interested in participation in the study were asked to contact the researcher by telephone and provide their names, telephone numbers, and addresses. Each potential volunteer was mailed an introductory letter (Appendix C), consent form (Appendix D), a demographic information questionnaire (Appendix E), and a stamped, return-addressed envelope. The introductory letter (Appendix C) informed potential subjects that the basic goal of this treatment was to increase pain management skills. Potential participants were encouraged to consider carefully the commitment required for participation in a study of this type. Meeting times were covered as well as the time requirement for subjects to practice newly acquired skills learned in group sessions. Additionally, the researcher's letter informed participants that psychological interventions of this type are designed to increase an individual's coping skills and that these interventions do not necessarily reduce pain levels. Past research with outpatient chronic pain clients has identified a significant treatment drop-out problem due to unrealistic participant expectations (Basler & Rehfisch, 1990; Kaluza & Basler, 1986).

Participants who returned the completed consent forms and demographic questionnaires were considered appropriate for inclusion in the study. Respondents who met the eligibility criteria were included in the subject pool until approximately 60 participants had been recruited.

## Instrumentation

Instruments used to measure variables in this study included a demographic questionnaire (Appendix E), the Beck Depression Inventory (BDI), and the Hope Scale (HS). The BDI and the HS are copyrighted and are not included in the appendices of this dissertation.

A demographic questionnaire was used to gather data to characterize the sample and determine its generalizability to the chronic pain population. Demographic information included the individual's type of initial injury or illness, age, gender, education level, marital status, race, and number of years with chronic pain. Additional demographic information of interest included number and type of surgical procedures as well as previous or current participation in psychological therapy or counseling.

### Beck Depression Inventory

The Beck Depression Inventory (BDI), developed by Beck, Ward, Mendelson, Mock, and Erbaugh (1961), was the first widely used inventory for the self-assessment of depressive symptomatology. The BDI, which measures intensity and depth of depression, covers 21 categories (e.g., mood, pessimism,

or work inhibition) of symptoms and attitudes associated with depression. The BDI is a self-administered instrument that usually takes 5 to 10 minutes to complete. It is scored by summing the 0- to 3-point rating given to each of the 21 items.

In a meta-analysis of 25 studies concerning reliability of the BDI, Beck, Steer, and Garbin (1988) reported internal consistency coefficients ranging from 0.73 to 0.92 in nonpsychiatric samples. Regarding test-retest stability, the coefficients for nonpsychiatric subjects ranged from 0.60 to 0.83.

Concerning validity, Beck et al. (1988) presented 35 studies correlating the BDI with other measures of depression. For example, the mean correlation coefficient between the Zung Depression Scale and the BDI was 0.76. The mean correlation coefficients between the Minnesota Multiphasic Personality Inventory (MMPI) Depression scale and the BDI were 0.60 for nonpsychiatric samples and 0.76 for psychiatric samples, respectively.

Construct validity of the BDI was assessed in a number of studies. The BDI was able to detect relationships between depression and attitudes and behaviors associated with depression. For example, depression (as measured by the BDI) was significantly related to self-reported anxiety (Baker & Jessup, 1980; DeLeon, Skodol, & Rosenthal, 1978). Concerning adjustment indicators, Albert and Beck (1975) found that the

BDI was positively related to teacher ratings of student maladjustment. Coleman and Miller (1975) established that depression was inversely related to marital adjustment. Additionally, suicidal behavior was positively associated with depression as measured by the BDI in a study conducted by Emery, Steer, and Beck (1981). Brooksbank and Coppen (1967) reported a positive relationship between BDI scores and levels of hydroxycorticosteriod (a blood plasma component that is medically linked to depression).

Hope Scale

The Hope Scale (HS) (Snyder et al., 1991) is a self-reported measure of hope. The HS is a paper-and-pencil instrument that consists of 12 items. Each statement is answered using a 4-point, Likert-type scale (1 = definitely false, 2 = mostly false, 3 = mostly true, 4 = definitely true). The HS contains eight hope items and four "fillers." The eight hope questions are evenly divided into areas of general cognitive outlook (e.g., "My past experiences have prepared me well for my future") and appraisals of ability to achieve goals (e.g., "I can think of many ways to get the things in life that are most important to me").

The test-retest reliability of the Hope Scale has been examined in four samples that attest to the temporal stability of HS scores. The test-retest correlations were .85 over a 3-week interval (Anderson, 1988), 0.73 over an 8-

week interval (Harney, 1989), and 0.76 and 0.82 over 10-week intervals in two samples (Gibb, 1990; Yoshinobu, 1989).

The validity of the Hope Scale also has been assessed. The HS compared favorably with other instruments in measuring similar psychological processes related to hope. For example, Life Orientation Test (Scheier & Carver, 1985), which is a measure of positive outcome expectations, had a 0.60 correlation with the HS (Gibb, 1990). The Generalized Expectancy for Success Scale (Fibel & Hale, 1978), which assesses expectancies for obtaining goals, had a 0.55 correlation with the HS (Gibb, 1990). Individuals with higher hope levels usually are expected to report less psychological disturbance and to have more positive expectations. Accordingly, the HS had a -0.42 correlation with depression as measured by the Beck Depression Inventory (Gibb, 1990). Similarly, the HS has been correlated with clinical subscales of the MMPI (e.g., Hypochondriasis, -0.30; Depression, -0.60; and Social Introversion, -0.59) (Snyder et al., 1991).

Concerning construct validities, the HS has compared favorably in studies measuring stress and goal setting, appraisal, and attainment (Snyder et al., 1991). For example, more hopeful individuals tend to appraise their goals in more positive terms and to engage in more goal-appropriate behaviors.

In conclusion, the psychometric properties of the BDI and the HS are well documented. Reliability and validity are sufficiently established, and both instruments were appropriate for the purposes of this research.

## Treatment Procedures

Potential sites were identified for the group meetings that were required for this research. Treatment and subsequent data collection were performed in three phases.

Phase I. The first phase of data collection consisted of the return of the completed informed consent form and the demographic information sheet. Pretreatment administration of the BDI and the HS occurred for all participants at the beginning of their respective initial meetings. Completion of these instruments required approximately 15 minutes.

Phase II. The second phase of data collection occurred at the conclusion of the second session. All participants completed the two assessment instruments. It is not uncommon, when treating depression with cognitive-behavioral interventions, to administer the BDI during each session. Additionally, multiple assessments assisted in addressing retention issues raised by Kaluza and Basler (1986) and Basler and Rehfisch (1990). That is, a regression analysis based on the first two assessments addressed retention issues.

Phase III. The third phase of data collection occurred at the conclusion of the final session. All subjects

received a posttest administration of the BDI and the HS during the last 15 minutes of the final session.

Description of the Intervention

The intervention for this research was a psychoeducational, cognitive-behavioral model. An educational approach was used with structured content and didactic teaching combined with psychological techniques, such as role playing, rehearsal, and group interactions. The cognitive-behavioral approach is a short-term treatment intervention. The 8-hour treatment intervention was consistent with other research (Turner & Romano, 1990) and was sufficiently lengthy to measure the differential response to treatment in levels of hope and depression.

Treatment groups of approximately 8 to 15 members per group met for four weekly 2-hour sessions. Group leaders were alternated each week to control for variance in group leader effect. The sessions were designed to cover specific content areas identified in the chronic pain literature that have demonstrated effectiveness for individuals with chronic pain. A session-by-session description of the intervention follows.

Session I. The first 45 minutes of the initial session was used to make introductions, administer the pretest instruments, and present a brief overview of the cognitive-behavioral approach. Confidentiality was discussed, and participants were encouraged to respect the privacy of others

by keeping any shared confidential information of a personal nature within the group.

The next 30 minutes were spent in a group discussion so that members could identify and share frustrations and losses common with the chronic pain experience. Members were encouraged to share both long- and short-term life changes that have resulted from their suffering. This sharing allowed group members to develop a common sense of suffering and provided an opportunity for them to express themselves. The group facilitator helped organize these experiences into categories (i.e., reduced physical activities, relationship stress).

Thirty minutes of group time was utilized in an educational format. The researcher presented a basic explanation of the gate-control theory of pain (Melzack & Wall, 1965) to illustrate the multidimensional nature of pain (sensory, affective, and cognitive). The presentation also covered the roles of cognitions and emotions in pain perception and the interrelationships among stress, tension, and pain. Examples were given to illustrate the interrelationships of tension and stress with pain. Differences between acute and chronic pain were discussed and examples of each were given. This information was presented in a lecture format using an overhead projector. Information was presented simply and relevantly by using participant examples given in the earlier group experience. The

educational component was designed to teach concepts that would allow members to reconceptualize their pain experience.

The homework assignment for this session was designed to make the gate-control theory of pain understandable and concrete by having participants generate a list of factors that would "open their pain gates" (e.g., fear, anxiety, and tension) and a list of personal factors that would "close their pain gates" (e.g., relaxation or attention diversion). This assignment encouraged participants to personalize the gate-control theory of pain by using factors from their own lives that affected their pain. The remainder of the first session was devoted to a question-and-answer format on the information covered during this session.

Session II. The first 15 minutes of the second session were devoted to reviewing the assigned homework. In group a context, individuals were asked to share and discuss some of the factors they had identified as exerting control over their pain. Common factors were recorded on a chalk board or large pad. These factors were divided into those that "open" and "close" pain gates.

The next hour of the second session was a presentation on the cognitive-behavioral approach to pain management; the assumptions underlying this perspective were delineated. The concept of cognitive restructuring (Beck, 1976; Ellis, 1962), which is a specific application of the cognitive-behavioral perspective, was presented. Subjects were encouraged to

identify and examine their negative cognitions during or prior to their pain episodes. Self-talk was defined, and the relationships among negative self-talk, depression, and pain were explored, using examples. Eight frequently identified styles of negative thinking were covered: blaming, "should" statements, polarized thinking, catastrophizing, control myths, emotional reasoning, filtering, and entitlement fallacies (Catalano, 1987). Subjects were encouraged to identify their negative and maladaptive thoughts associated with pain. Emphasis was placed on negative cognitions associated with an increased perception of pain (e.g., "This pain is getting worse and I'm going crazy"). The information was presented in a lecture format, using an overhead projector.

Three techniques were presented for individuals to approach the task of replacing negative thoughts: Ellis' ABCD model, thought stopping, and thought analyzing. Examples of each of these techniques were described. The group was divided into triads to practice the skills involved. Individuals were encouraged to share self-talk statements and then to practice interventions from the three models presented. The group then was reassembled and a handout (Appendix F) that outlined the three techniques covered during the session was distributed. This practice required approximately 30 minutes.

The homework assignment for Session II was for each subject to explain to a significant other the cognitive-behavioral techniques that were presented in this session. Participants were encouraged to be particularly aware of the concepts that they had difficulty explaining so that they could clarify their difficulties during the beginning of Session III. They also will be asked to utilize at least one of these techniques each day until the next session and to maintain a log of the experience. The time remaining will be set aside for questions or review.

Session III. Session III focused on the relationship of stress to pain and stress management techniques. The first 30 minutes were devoted to a review of participants' cognitive-behavioral homework assignments. In the large-group setting, participants were asked to describe their experiences in explaining the cognitive-behavioral concepts presented in Session II to significant others. They also were asked to describe at least one homework success and one not-so-successful experience when using these techniques.

The next hour of Session III focused on pain reduction by utilizing stress-management techniques because stress has been linked to a reduced tolerance to pain (Gildenberg & DeVaul, 1985). Prolonged pain itself can be a source of stress as can associated pain-related dysfunction at home, work, and in leisure activities (Turner & Romano, 1989). Group members were asked to identify stressors in their

lives. These stressors (e.g., financial difficulties, role changes, and loss of physical abilities) were recorded and organized into categories. The presentation returned to a didactic format, with the researcher presenting an overview of stress that included definitions of stress (both positive and negative), an explanation of the stress response, and physiological responses to stress.

The relationship between stress and muscular tension was explained using various examples. Relaxation as a stress control technique was explored, and three relaxation exercises were presented as stress control techniques. These exercises included progressive relaxation (Bernstein & Borkovec, 1973), imagery (Turk et al., 1983), and deep breathing (Turk et al., 1983). These methods were discussed in a lecture format. The researcher then led the participants in a practice of each of the techniques, instructing individuals to move at their own pace and to participate in these exercises as they were able. Additional stress-reduction techniques were discussed in the time remaining.

Homework for this session included having subjects practice the relaxation exercises for an hour each day during the next week. Participants monitored their experiences using the relaxation exercise worksheet (Appendix G). They also were encouraged to invite significant others to help them practice these exercises.

Session IV. The final session began with a 15-minute review of the relaxation exercise homework assigned at the conclusion of Session III. In the large group, participants were asked to share their experiences in their practice of the assigned relaxation exercises. They were asked to identify aspects of each of the exercises that seemed most beneficial to them. Participants were encouraged to continue experimenting with different exercises and to tailor a personal relaxation program that most adequately met their needs.

Following this discussion, the cognitive-behavioral strategies presented in Session II were reviewed. The participants were separated into groups of three or four, and individuals were asked to describe their successes and difficulties in utilizing the three techniques of dealing with negative thoughts. One member of the group acted as a recorder who later outlined individual experiences with these models to the full group. The group leader summarized successes and problem areas into categories and assisted group members with alternative approaches or proposals to assist them with these approaches. This review took approximately 30 minutes.

The first 30 minutes of the second hour of the session was utilized to offer information on locally available chronic pain resources. This information included a list of

health-care professionals with specialized training or experience in working with individuals with chronic pain.

The remaining 30 minutes of Session IV consisted of a wrap-up of the training and a posttest administration of the assessments used to measure the dependent variables identified in this study.

## Data Analyses

The demographic information was summarized, using descriptive statistics. Descriptive information was dichotomized into compensation and noncompensation components to present respective sample sizes, means, and standard deviations. Additionally, characteristics of individuals not completing treatment were presented.

The first two hypotheses of no pretreatment differences in hope and depression levels were assessed through computation of independent sample *t*-tests at the 0.025 level of significance (Bonferroni *t*-tests). A directional alternative hypothesis was implemented because noncompensation clients were expected to score more positively on both instruments.

The third and fourth hypotheses were analyzed using multiple regression models. A multiple regression model statistically removed predictable individual differences from the dependent variables of hope and depression and thus provided a more powerful estimate of experimental error and a rigorous test of the null hypotheses (Pedhazur, 1982).

The full multiple regression model that assessed the effect of treatment and group membership on the dependent variables of hope and depression at mid-treatment and post-treatment, is

$$Y = a + b_1X_1 + b_2X_2 + b_3X_1X_2,$$

where

- Y represents the dependent variables hope and depression as measured at both intervals;
- $a$ is the intercept in the regression model;
- $b_1$ is the regression coefficient for the pretest for the group coded zero on $X_2$;
- $X_1$ is the score on the pretest;
- $b_2$ is the treatment differential controlling for the pretest;
- $X_2$ is the dummy code, with compensation individuals coded 0 and noncompensation individuals coded 1; and
- $b_3$ is the interaction between treatment and group membership.

Prior to testing the null hypotheses, the interaction between treatment and group membership was analyzed. This determined whether the regression slopes were parallel and verified the assumption of homogeneous regression slopes in Analysis of Covariance (ANCOVA). The interaction term $b_3$ was

tested at the 0.05 level of significance. If significant, the data were plotted and interpreted to determine whether an ordinal or disordinal interaction was present. If the interaction was disordinal, a post-hoc Johnson-Neyman test was conducted.

If the test of $b_3$ confirmed that the slopes were parallel, a multiple regression was conducted utilizing a reduced model. The reduced model is

$$Y = a + b_1X_1 + b_2X_2,$$

with each of the terms identical to the terms described in the full model. The reduced model focused on the analysis of $b_2$ at the 0.05 level of significance. This determined whether the two groups were identical after removing pretest existing differences. If significant, it was concluded that the groups responded differentially to the treatment after controlling for pretest differences. The resultant regression line was plotted and interpreted.

The fifth hypothesis, concerning whether the retention rates were identical for the compensation and noncompensation groups, was analyzed with a chi-square goodness of fit analysis (Shavelson, 1989). This nonparametric statistic test was used to determine if the two groups were independent of each another at the 0.05 level of significance. The chi-square test compared whether the actual retention rate by

group differed from the expected frequencies. In essence, by using the chi-square test, it was possible to determine if retention rates fluctuated merely by chance or whether compensation and noncompensation status influenced retention rates.

The final hypothesis, concerning the difference in the relationship of hope and depression, was tested utilizing a Fishers Z modification. This test determined whether on not the observed difference between two correlations based on independent samples was the result of chance or whether it represented the difference between population correlation coefficients. The observed correlation coefficients were transformed to Fishers Z's. The computational formula is

$$z = \sqrt{\frac{z_1 - z_2}{\frac{1}{n_1-3} + \frac{1}{n_2-3}}}$$

where

$z_1$ represents the transformed correlation coefficient of hope and depression for the noncompensation group,

$z_2$ represents the transformed correlation coefficient of hope and depression for the compensated group;

$n_1$ represents the number of noncompensation individuals, and

$n_2$ represents the number of compensated individuals.

The assumptions made in the test were (a) independence of the two samples, (b) bivariate normality for each population, and (c) sample sizes for each group were greater than 20 (Shavelson, 1989). A two-tailed *z* test was utilized at the conventional .05 level of significance; therefore, a *z* value of greater than 1.96 was used to determine significance.

Descriptive statistics and inferential tests of the five hypotheses assisted in providing insight into the influence of compensation status on response to treatment. Due to random sampling considerations, this research design, which includes a pretest, controlled for preexisting sample differences. The other two measurement occasions, midtreatment and posttreatment, provided an opportunity to assess changes throughout treatment.

# CHAPTER IV
# RESULTS

This study was designed to compare the levels of hope and depression in workers' compensation and noncompensation chronic pain clients. Specifically, levels of hope and depression were assessed before, during, and after client participation in a short-term, cogitive-behavioral counseling intervention. The sample consisted of 62 individuals experiencing chronic pain. Thirty-two were receiving workers' compensation benefits and 30 were not compensation recipients. In this chapter the results of the data analyses are presented as they pertain to the specific hypotheses postulated for the research.

## Research Subjects

Letters describing the study and requesting their cooperation were sent to physicians and physical therapists who treated patient populations that included chronic pain individuals. They were asked to identify and encourage individuals with chronic pain to participate in the research project. Twenty-seven participants expressed immediate interest in participating in the study and were placed in groups in Gainesville and Ocala, Florida. Thirty-five additional participants were placed into four new groups within a few weeks of the initial placements.

An analysis of the Demographic Questionnaire (see Tables 1 and 2) revealed that 32 workers' compensation and 30 noncompensation clients were involved in treatment groups. The subjects were almost evenly divided by gender with 32 males and 30 females participating. Regarding ethnicity there were 41 Caucasians and 21 African American subjects who participated. No other ethnic groups were represented. Subjects who had received counseling in the past or who were currently receiving counseling (30) and their noncounseling counterparts (31) were almost evenly divided.

The age of the subjects ranged from 18 to 72 with a mean age of 42.4. The average education level was 11.8 years and subjects reported an average of 27.2 months of chronic pain (Table 2). When the subjects' age, education and duration of pain were examined by compensation status, the noncompensation subjects were slightly older, slightly more educated and had experienced pain almost 8 months longer (Table 4). Additional demographic data are presented in Tables 1 through 4. Some subjects did not respond to each demographic questions; therefore, the number of subjects does not always total 62 and cumulative percent refers to the total subjects in each category.

Table 1

Compensation Status, Gender, Ethnicity, Marital Status, Counseling Involvement, Type of Injury, and Surgical Interventions Data for Subjects

| | n | Percent | Cumulative Percent |
|---|---|---|---|
| Compensation status | | | |
| Compensation | 32 | 51.6 | 51.6 |
| Noncompensation | 30 | 48.4 | 100.0 |
| Gender | | | |
| Males | 32 | 51.6 | 51.6 |
| Females | 30 | 48.4 | 100.0 |
| Ethnicity | | | |
| Caucasians | 41 | 66.1 | 66.1 |
| Hispanic | 0 | 00.0 | 66.1 |
| African American | 21 | 33.9 | 100.0 |
| Asian | 0 | 00.0 | 100.0 |
| Native American | 0 | 00.0 | 100.0 |
| Other | 0 | 00.0 | 100.0 |
| Marital status | | | |
| Single | 7 | 11.5 | 11.5 |
| Married | 39 | 63.9 | 75.4 |
| Separated | 2 | 3.3 | 78.7 |
| Divorced | 13 | 21.3 | 100.0 |
| Previous or current counseling involvement | | | |
| No counseling | 31 | 50.8 | 50.8 |
| Counseling | 30 | 49.2 | 100.0 |

Table 1--continued.

| | n | Percent | Cumulative Percent |
|---|---|---|---|
| Injury type | | | |
| Lumbar | 30 | 51.7 | 51.7 |
| Nonlumbar | 28 | 48.3 | 100.0 |
| Surgical interventions | | | |
| No surgeries | 42 | 71.2 | 71.2 |
| Surgeries | 17 | 28.8 | 100.0 |

Table 2

Age, Education, and Surgery Data for Subjects

| | n | Mean | SD | Range |
|---|---|---|---|---|
| Age | 62 | 42.4 | 10.4 | 54 |
| Education (years) | 62 | 11.8 | 2.1 | 13 |
| Months with chronic pain | 57 | 27.2 | 24.8 | 117 |
| Number of surgeries | | | | |
| Nonsurgical | 42 | 0.0 | 0.0 | 0 |
| Surgical | 17 | 3.2 | 2.6 | 12 |

Table 3

Compensation Status Data

| | n | Percent | Cumulative Percent |
|---|---|---|---|
| Compensation status by counseling | | | |
| Noncompensation | | | |
| Counseling | 16 | 26.2 | 26.2 |
| No counseling | 14 | 22.9 | 49.1 |
| Compensation | | | |
| Counseling | 14 | 22.9 | 72.0 |
| No counseling | 17 | 27.9 | 100.0 |
| Compensation status by gender | | | |
| Noncompensation | | | |
| Male | 12 | 19.4 | 19.4 |
| Female | 18 | 29.0 | 48.4 |
| Compensation | | | |
| Male | 20 | 32.2 | 80.6 |
| Female | 12 | 19.4 | 100.0 |
| Compensation status by ethnicity | | | |
| Noncompensation | | | |
| Caucasians | 20 | 32.2 | 32.2 |
| African American | 10 | 16.2 | 48.4 |
| Compensation | | | |
| Caucasians | 21 | 33.9 | 82.3 |
| African American | 11 | 17.7 | 100.0 |

Table 4

Age, Education, and Duration of Chronic Pain Data

| | n | M | SD | Range |
|---|---|---|---|---|
| Age (years) | | | | |
| Compensation | 32 | 41.7 | 8.8 | 36 |
| Noncompensation | 30 | 43.2 | 12.0 | 54 |
| Education (years) | | | | |
| Compensation | 32 | 11.3 | 2.1 | 13 |
| Noncompensation | 30 | 12.2 | 2.0 | 8 |
| Duration of chronic pain (months) | | | | |
| Compensation | 30 | 23.5 | 23.7 | 116 |
| Noncompensation | 27 | 31.4 | 25.7 | 116 |

## Hypotheses

### Hypothesis One

The first null hypothesis stated,

> There are no pretreatment statistically significant differences in levels of hope for compensation and noncompensation clients.

The compensation subjects had a mean pretreatment score of 20.7 on the Hope Scale, and the noncompensation subjects had a mean pretreatment score of 23.2. An independent sample *t*-test at the 0.025 level of significance (Bonferroni adjustment) was applied to determine pretreatment

significant differences in hope level for compensation and noncompensation clients.

No significant difference existed between the compensation and noncompensation groups on the pretest levels of hope ($t_{.025,60} = -2.03$). Therefore, null hypothesis one was not rejected.

Hypothesis Two

The second null hypothesis stated,

> There are no pretreatment statistically significant differences in levels of depression for compensation and noncompensation clients.

The compensation subjects had a mean depression score of 22.87 on the Beck Depression Inventory while the noncompensation subjects had a mean depression score of 14.6. An independent sample $t$-test at the 0.025 level of significance (Bonferroni adjustment) was computed to determine pretreatment significant difference in depression level for compensation and noncompensation clients.

A significant difference existed between the compensation and noncompensation groups on the pretest levels of depression ($t_{.025,60} = 2.86$). Therefore, null hypothesis two was rejected. The compensation subjects with chronic pain reported higher initial levels of depression.

Hypothesis Three

The third null hypothesis stated,

> There are no statistically significant differential treatment effects in levels of hope for compensation and noncompensation clients.

The third hypothesis was analyzed using a multiple regression model. This model was chosen in order to remove predictable individual differences from the dependent variable of hope. It provides a more powerful estimate of experimental error and a rigorous test of the null hypothesis (Pedhazur, 1982). The multiple regression model included as independent variables the pretest measure of hope and the group variable of compensation or noncompensation; the criteria variable was the posttest measure of hope.

The model accounted for 52% of the total variance in the posttest and was interpreted as significant. This multiple regression analysis is reported in Table 5.

The specific hypothesis of differential treatment effect of hope for compensation and noncompensation subjects was tested by comparing the difference in the intercepts of the two groups. The intercept difference was 1.72 and was interpreted as significant ($t_{.025,1} = 2.36$). Therefore, the null hypothesis was rejected; that is, the results of testing demonstrated that the compensation clients' levels of hope did not improve as significantly as did their noncompensation counterparts. These results suggest that compensation clients did not develop hopeful expectations over the course of treatment to the same degree as did the noncompensation clients in this study.

Table 5

Multiple Regression Analysis for Hope Controlling for Preexisting Differences and Group Membership

| | SS | DF | MS | F | PR |
|---|---|---|---|---|---|
| Model | 380.73 | 2 | 190.38 | 27.71 | 0.00* |
| Error | 350.30 | 51 | 6.87 | | |

* $p < .05$

Hypothesis Four

The fourth null hypothesis stated,

> There are no statistically significant differential treatment effects in levels of depression for compensation and noncompensation clients.

The fourth hypothesis was analyzed using a multiple regression model. This model was chosen in order to remove predictable individual differences from the dependent variables of depression and thus provide a more powerful estimate of experimental error and a rigorous test of the null hypotheses (Pedhazur, 1982). The multiple regression model included as independent variables the pretest measure of depression and the group variable of compensation or noncompensation. The criteria variable of the posttest measure was depression.

The model accounted for 72% of the variance in the posttest and was significant at the 0.05 level of significance. This multiple regression analysis is reported in Table 6.

Table 6

Multiple Regression Analysis for Depression Controlling for Preexisting Differences and Group Membership

| Source | SS | DF | MS | F | PR |
|---|---|---|---|---|---|
| Model | 3068.9 | 2 | 1534.4 | 65.11 | 0.0001 |
| Error | 1178.32 | 50 | 25.57 | | |

* p <.05

The specific hypothesis of differential treatment effects of depression for compensation and noncompensation was tested by comparing the difference in the intercepts of the two groups. The difference in the intercepts was -1.64 and was not significant ($t_{.025,1} = -1.18$). Therefore, the null hypothesis was not rejected. These results suggest that, regarding depression, compensation clients were able to respond to treatment as favorably as the noncompensation clients.

Hypothesis Five

The fifth null hypothesis stated,

> There is no statistical difference in retention rate during the treatment period for compensation and noncompensation clients.

The fifth hypothesis was analyzed utilizing a Chi-square goodness-of-fit test. Conducting the Chi-square test permitted determination of whether the actual retention rate by group differed from the expected frequencies.

Retention frequency rates are reported in Table 7. The Chi-square index of 0.02 was not significant. Consequently, there was no significant association between compensation and noncompensation clients in retention levels. Therefore, the null hypothesis was not rejected. This finding indicates that compensation and noncompensation clients in this study withdrew from treatment at similar rates.

Table 7

Retention Frequencies by Compensation Status

| | Compensation | Noncompensation | Total |
|---|---|---|---|
| Noncompleters | 8<br>12.9% | 7<br>11.2% | 15<br>24.1% |
| Completer | 24<br>38.7% | 23<br>37.1% | 47<br>75.8% |
| Total | 32<br>51.6% | 30<br>48.3% | 62<br>100% |

Hypothesis Six

The sixth null hypothesis stated,

> There is no statistical difference following treatment in the relationship of hope and depression for compensation and noncompensation clients.

The final hypothesis was tested utilizing a modification to Fisher's *z* test of correlations. This analysis compares the correlation of hope and depression on the posttest for the compensated group to the correlation of

hope and depression on the posttest for the noncompensated group to determine if a significant difference exists.

The correlation of the posttest measures of hope and depression for the compensation clients was -0.61. The correlation of the posttest measures of hope and depression for the noncompensation clients was -0.60. Thus, the relationship between hope and depression for the two groups was almost identical. The Fisher z calculation resulted in a value of 0.06. Therefore, there was no significant difference in the relationship of hope and depression for compensation and noncompensation clients.

Results for the Overall Group

The results concerning overall changes in levels of hope and depression for all participants regardless of compensation status are discussed in this section. Table 8 shows that the overall improvement in levels of hope was 2.8, which was statistically significant. Levels of depression dramatically improved by decreasing by 7.35 points. Consequently, all subjects in this study improved in levels of hope and depression regardless of compensation status.

Table 9 reveals other changes in levels of hope and depression with respect to variables such as surgery, counseling, gender, race, and type of injury. In comparing subjects with and without surgery, there was a 7 point decrease in levels of depression while the nonsurgical subjects increased slightly more in levels of hope than did

Table 8

The Mean Change in Scores due to Treatment for Hope and Depression, and Dependent Sample t-Test.

| | M | SD | t | PR |
|---|---|---|---|---|
| All participants | | | | |
| Change of hope scores | 2.8 | 3.4 | 6.1 | 0.0001 |
| Change of depression scores | -7.35 | 6.86 | -7.8 | 0.0001 |

the surgical subjects. While both counseling and noncounseling clients similarly improved, the subjects who had received or were receiving counseling clearly reported higher levels of depression and lower levels of hope at onset of treatment. Males in this study presented with higher levels of depression than did females (the males' pretest mean scores were 18.9 and the females' pretest mean scores were 14.5). However, males experienced a decline in depression mean scores of 7.8 while females' mean scores declined 2.7. Both groups posted similar posttest depression scores on the BDI. African Americans began treatment with higher levels of depression and lower levels of hope than their Caucasian counterparts. Both groups made similar improvements in depression scores (8.6 gain for the mean African Americans' score and 7 gain for the mean Caucasians' scores). However, the data show that African Americans left treatment with higher depression scores. The dichotomous grouping of subjects' injuries into lumbar

(i.e., lower back injures) and nonlumbar revealed similar results for both groups, resulting in parallel improvements in hope and depression levels.

Table 9

Means for Hope and Depression by Surgery, Counseling, Gender, Race, and Type of Injury

| | n | M | SD | Range |
|---|---|---|---|---|
| No surgery | | | | |
| Hope (pretest) | 42 | 21.8 | 4.8 | 20 |
| Hope (posttest) | 37 | 24.9 | 3.8 | 16 |
| Depression (pre) | 42 | 18.1 | 12.4 | 50 |
| Depression (post) | 36 | 11.1 | 10.1 | 42 |
| Surgery | | | | |
| Hope (pretest) | 17 | 22.8 | 4.2 | 17 |
| Hope (posttest) | 37 | 24.0 | 3.4 | 14 |
| Depression (pre) | 17 | 18.7 | 11.0 | 38 |
| Depression (post) | 14 | 11.6 | 6.9 | 20 |
| No Counseling | | | | |
| Hope (pretest) | 31 | 23.3 | 3.1 | 14 |
| Hope (posttest) | 28 | 25.4 | 2.9 | 13 |
| Depression (pre) | 31 | 15.1 | 9.3 | 33 |
| Depression (post) | 27 | 8.5 | 7.0 | 42 |

Table 9--continued.

| | n | M | SD | Range |
|---|---|---|---|---|
| Counseling | | | | |
| Hope (pretest) | 30 | 20.4 | 5.7 | 21 |
| Hope (posttest) | 25 | 23.3 | 4.0 | 15 |
| Depression (pre) | 30 | 23.0 | 13.3 | 49 |
| Depression (post) | 25 | 15.0 | 9.7 | 40 |
| Males | | | | |
| Hope (pretest) | 32 | 22.4 | 4.9 | 21 |
| Hope (posttest) | 29 | 24.9 | 3.5 | 16 |
| Depression (pre) | 32 | 18.9 | 11.6 | 45 |
| Depression (post) | 28 | 11.1 | 7.9 | 27 |
| Females | | | | |
| Hope (pretest) | 30 | 21.4 | 4.5 | 19 |
| Hope (posttest) | 25 | 24.2 | 3.9 | 15 |
| Depression (pre) | 30 | 14.5 | 9.6 | 29 |
| Depression (post) | 25 | 11.8 | 10.2 | 42 |
| African American | | | | |
| Hope (pretest) | 21 | 20.1 | 4.9 | 19 |
| Hope (posttest) | 19 | 24.4 | 4.1 | 15 |
| Depression (pre) | 21 | 21.7 | 13.4 | 49 |
| Depression (post) | 19 | 13.1 | 11.0 | 42 |

Table 9--continued.

| | n | M | SD | Range |
|---|---|---|---|---|
| Caucasians | | | | |
| Hope (pretest) | 41 | 22.8 | 4.4 | 21 |
| Hope (posttest) | 35 | 24.6 | 3.5 | 16 |
| Depression (pre) | 41 | 17.3 | 11.1 | 46 |
| Depression (post) | 34 | 10.3 | 7.6 | 27 |
| Nonlumbar | | | | |
| Hope (pretest) | 28 | 21.6 | 5.0 | 21 |
| Hope (posttest) | 24 | 24.4 | 4.3 | 16 |
| Depression (pre) | 28 | 20.1 | 11.9 | 49 |
| Depression (post) | 24 | 12.4 | 9.9 | 42 |
| Lumbar | | | | |
| Hope (pretest) | 30 | 22.3 | 4.4 | 20 |
| Hope (posttest) | 26 | 24.5 | 3.3 | 15 |
| Depression (pre) | 30 | 17.4 | 11.9 | 46 |
| Depression (post) | 25 | 11.0 | 8.6 | 30 |

# CHAPTER V
# DISCUSSION

The purpose of this study was to compare the responses of compensation and noncompensation individuals with chronic pain to a short-term cognitive-behavioral counseling intervention. Two dependent variables, levels of hope and depression, were identified as measures of response to treatment. This chapter includes discussion and evaluation of the hypotheses, limitations of the study, implications, and recommendations for further study.

## Discussion of Results

### Hypothesis One

The first null hypothesis stated,

> There are no pretreatment statistically significant differences in levels of hope for compensation and noncompensation subjects.

The null hypothesis was not rejected since there was no significant difference in levels of hope between compensation and noncompensation subjects at the onset of treatment. Compensation subjects' levels of hope were only slightly lower than their noncompensation counterparts. This result was not expected because clinical experience would suggest that compensation clients have less hopefulness than noncompensation clients due to difficulties in coping with the workers' compensation system. The lack

of significant difference in levels of hope in regard to compensation status may have resulted from the volunteer participants' not being typical of workers' compensation individuals; that is, the volunteers participating in this study may have been more motivated and, therefore, had more hope and, thus, reported higher hope at the onset of treatment.

Hypothesis Two

The second null hypothesis stated,

> There are no pretreatment statistically significant differences in levels of depression for compensation and noncompensation subjects.

This research did not support the null hypothesis since there was a large difference in levels of depression between compensation and noncompensation clients at the onset of treatment. More specifically, the compensation subjects with chronic pain reported higher initial levels of depression than did the noncompensation subjects. There are a number of plausible factors that may have contributed to these higher initial levels of depression. These factors include the workers' compensation system, uncertainty concerning future employment, loss of a work identity and the resultant reduced self-esteem, physiological challenges (including chronic pain), and secondary gains.

Injured individuals in the workers' compensation system often experience a loss of control over their lives. For example, typically, insurance adjusters control access to

and choice of physicians and other health-care providers. Additionally, insurance adjusters regulate injured workers' wage loss replacement benefits. Prior to their injury, all workers' compensation subjects in this study were employed and managed their own personal, social, and financial obligations. Following injury, the compensation system has tremendous control over employment, medical, and financial aspects of the individuals' lives. The psychological repercussions of this loss of personal control can be emotionally devastating. Clients often report how the system and their loss of autonomy impact their emotional well being and are conducive to depression.

Many injured workers are appropriately concerned about their vocational future. A small percentage of injured workers may never return to gainful employment, but most will return to some type of work. However, many of those will not return to positions with earnings comparable to their preinjury income. In addition, workers' compensation status may impede reemployment because employers are often reluctant to hire (previously) injured employees.

The loss of personal control over life responsibilities, along with the uncertainty of vocational future, often significantly impacts an individual's self-esteem and identity. Many clients strongly identify with their work; loss of employment and uncertainty of vocational

future, therefore, has significant psychological consequences such as depression and loss of hope.

Depression also has been linked with chronic pain (Brown, 1990; Magni, 1987; Romano & Turner, 1985). With factors such as the compensation system, uncertainty regarding future employment, and loss of self-esteem, compensation clients may be more vulnerable to physiological pain symptoms than their noncompensation counterparts. Thus, the effects of living with chronic pain along with factors involved in the compensation system may be conducive to clinical depression.

Finally, secondary gains may influence a compensation client's life and increase depressive symptoms. Typically, injured individuals experience reduced responsibilities with increased personal attention from other family members. "One declared sick by a physician is excused from responsibilities as spouse, parent, and wage earner and is cared for by others" (Gildenberg & DeVaul, 1985, p. 19).

Reduced responsibilities may be an appropriate response to an injury in order to allow healing time for recovery. However, many individuals find it difficult to relinquish the privileges that accompany being sick and adapt readily to the sick or disabled role. Keefe and Brown (1982) included attention, sympathy, and financial compensation as well as other forms of "rewards" contingent on pain behavior in their definition of secondary gains. Gildenberg and

DeVaul (1985) also noted that secondary gains are an important variable in patient recovery. Secondary gains may inhibit an individual's effort to resume self-management of personal affairs. Thus, secondary gains may maintain an individual's passivity and lead to depression. Approaches to offset these factors that encourage and maintain depressive symptoms are discussed later.

Hypothesis Three

The third null hypothesis stated,

> There are no statistically significant differential treatment effects in levels of hope for compensation and noncompensation clients.

Hypothesis three was rejected because this research demonstrated that the compensation subjects' reported levels of hope did not improve as significantly as did their noncompensation counterparts.

Hope is characteristically defined as a belief that a desired outcome may occur. Because hope is a future-oriented cognitive set, it is understandable that compensation clients may experience diminished hope when their current situation hinders a positive view of their future. Given the uncertainty of medical outcomes, future employment, and financial security, individuals may experience and report diminished levels of hope.

In addition, as described above, the workers' compensation system may create a sense of helplessness because the system controls many aspects of an injured

worker's personal, medical, and financial life. Seligman, Weinraub, and Schulman (1987) demonstrated that helplessness is positively correlated to hopelessness. Consequently, an individual in the workers' compensation system may begin to feel helpless as the system manages more aspects of his or her life. Seligman described this process as "learned helplessness." Such helplessness can change into hopelessness in the sense that lack of control over current life activities affects perceived future outcomes.

Hypothesis Four

The fourth null hypothesis stated,

> There are no statistically significant differential treatment effects in levels of depression for compensation and noncompensation clients.

The fourth null hypothesis was not rejected because this researcher found that compensation and noncompensation clients' levels of depression decreased similarly in this study. These results suggest that the levels of depression in compensation subjects improved as favorably as did the noncompensation subjects.

This result is encouraging because, based on the researcher's clinical experience, compensation subjects were not expected to improve or to exhibit only minor changes. As described, compensation status can have an inhibiting influence on the response to medical and counseling interventions. This result suggests that a counseling intervention such as a cognitive-behavioral treatment is

effective with compensation clients as well as with noncompensation clients. Therefore, Beck's cognitive-behavioral intervention for depression may be effective with chronic pain clients regardless of compensation status.

The results of hypothesis three suggested that compensation clients did not develop as hopeful expectations for their future. On the other hand, hypothesis four found that depression levels did improve, which implies that the compensation clients in this study gained some additional control over their chronic pain and may have experienced some greater adjustment.

Hypothesis Five

The fifth null hypothesis stated,

> There is no statistical difference in retention rate during the treatment period for compensation and noncompensation clients.

This research demonstrated that compensation and noncompensation clients withdrew from treatment at similar rates. This result also is encouraging because it was expected that compensation subjects would not remain in treatment at the same level as noncompensation subjects. The issue of compliance with compensation clients has been raised by numerous medical and rehabilitation professionals. Past research with outpatient chronic pain clients has identified a significant treatment retention problem (Basler & Rehfisch, 1990; Kaluza & Basler, 1986).

The positive retention rate in this study may be explained by the voluntary nature of this research because no subjects were mandated to receive this treatment. As volunteers, subjects may have been more self-motivated and more personally invested in successful treatment outcomes. Additionally, the lack of retention problems also may be explained by the favorable research results; that is, subjects' levels of depression improved regardless of compensation status, and they may have felt encouraged to remain in treatment.

Hypothesis Six

The sixth null hypothesis stated,

> There is no statistical difference following treatment in the relationship of hope and depression for compensation and noncompensation clients.

This null hypothesis was not rejected because there was no significant difference in the relationship of hope and depression for compensation and noncompensation clients. This issue concerns the relationship between changes in levels of hope to changes in levels of depression with respect to compensation status. This research found that the changes in hope and depression were not significantly related.

## Discussion of Additional Research Findings

In addition to the results gained from testing the research hypotheses, other notable findings were obtained. For example, this research found that male subjects' initial

(i.e., before treatment) levels of depression were significantly higher than for females. This result is not consistent with research findings that show that women are twice as likely as men to report depression (Nolen-Hoeksema, 1987). The inconsistency between the two findings is most likely due to the subjects utilized in this research. More specifically, the males in this study may not be typical of the general population because they have experienced serious disruption in their employment in addition to symptoms of chronic pain. This disruption impedes the ability to fulfill their perceived notion of the "traditional" male role as the primary provider and is, thus, conducive to depression. In short, the males in this study may not be satisfying the provider role which they held prior to their injury.

Regarding ethnicity and depression, the findings were consistent with other research findings. More specifically, African Americans reported a significantly higher level of depression than did the Caucasian subjects (Frerichs, Aneshensel, & Clark, 1981; Kaplan, Roberts, Camancho, & Coyne, 1987). This suggests that counselors and other health-care providers should be multiculturally sensitive because minority members with chronic pain may be encumbered with additional depressive symptoms.

## Limitations

### Internal Validity

The repeated tests design used in this study is generally considered to provide adequate control for threats to internal validity. However, concern may be raised with several issues. First, because all participants were volunteers, the issue of differential selection may be raised. It is possible that individuals who participated in this research were not generally representative of compensation and noncompensation individuals with chronic pain. The recruitment of subjects occurred only for those individuals participating in medical care, and the subjects obtained may not be representative of all chronic pain patients. Many individuals with chronic pain are no longer receiving medical treatment.

Contemporary history (i.e., current factors affecting a subject's life) also may have an effect on the validity of this study. Many of the subjects were involved with other service providers for their chronic pain (i.e., physicians, mental health professionals, or physical therapists) which may have affected their levels of pain and the subsequent reported levels of depression and hope. For example, subjects involved in physical therapy may have experienced higher levels of pain on the days that they participated in this study. Consequently, exclusion of subjects involved in other treatment modalities was considered but not deemed

feasible because many chronic pain individuals are involved in some type of ongoing treatment in an attempt to ease their pain.

Additionally, a number of participants were involved in ongoing litigation or were considering litigation which may have affected their response to treatment. Due to the financial ramifications of litigation, a subject's levels of hope and depression may vary. Demonstration of increased disability and pain is financially advantageous in the litigation process. The exclusion of individuals involved in litigation issues also was considered but again was not possible since many workers' compensation subjects were considering or involved in ongoing litigation.

Another issue concerns pretesting and its effects on internal validity. Because all participants were assessed on three different occasions, the issue of testing sensitivity may be raised; that is, repeated exposure to the instruments may have familiarized subjects with test items and test orientation. A response set might have occurred as subject's responses paralleled their previous answers rather than being independent. Nevertheless, many experimenters and therapists using cognitive-behavioral interventions utilize the Beck Depression Inventory after each session (Turner & Jenson, 1993). Multiple assessments were used in this study to follow this protocol and also to address the potential of retention difficulties.

Another internal validity issue in this study concerns the nature of testing instruments, that is, the use of self-report tests. With self-report instruments, subjects may not give accurate and objective responses to test items. Accordingly, Stehouwer (1985) asserted that the face validity of self-report instruments such as the BDI may be problematic. For example, test takers may readily fake depression or its absence. This potential problem might also have arisen with the Hope Scale because subjects may report artificially high or low hope levels.

Response set is another issue with self-report instruments; that is, a subject may simply choose a particular type of response on each item, such as the extreme response indicative of the most or least level of depression or hope. The issues of face validity and response set may occur with any self-report instrument and are unavoidable limitations of a study such as this one.

Subjects' behavior also may be partly influenced by their perception of participation in research and their expectation of how they should respond to the provided treatment. An individual's awareness of participation in research may precipitate behaviors or responses on dependent variable measures which may not be representative of a nonexperimental situation.

External Validity

Generalizability is addressed vis-à-vis external validity. Ary (1985) divided generalizability into two components: population validity (i.e., whether the experimental data will apply to the population) and ecological validity (i.e., the environmental effect on the research). In this study, there were at least three sources of threats to external validity which may have influenced the generalizability: pretest sensitization, volunteerism, and experimenter effect.

The issue of pretesting is a factor to be considered in external validity as well as in internal validity. Pretest sensitization may affect generalizability because testing may affect a participant's responses. This limitation concerns the fact that when a pretest has been given, the experimental results may partly be the result of the sensitization to the content of the instrument; that is, the pretest may give a subject information and various preconceptions regarding the nature of the experiment. Because this study utilized a pretest and repeated measures of the dependent variables, this problem may have occurred.

Experimenter effect also can impact a study's generalizability. Characteristics or differences of the group leaders may have restricted the generalizability of the results of this study. The behaviors of the subjects may have been unintentionally influenced by characteristics

or behaviors of the experimenter. The expectations of the experimenter might also have biased the administration of the treatment. However, a standardized treatment protocol was developed for this study, and group leaders closely adhered to the protocol. On the other hand, contrary to notion of the importance of the exact replication of the presentation, Isaac and Michael (1984) indicated that some variance in the stimulus source may actually increase the generalizability of the results.

An additional issue that may affect generalizability is volunteerism. Participants who volunteer for research or treatment may be more responsive to treatment interventions than nonvolunteers. Volunteers may be more motivated to make gains on the dependent variables than nonvolunteers. Thus, the decrease in levels of depression and the increase in levels of hope among subjects in this study may not have been the result of the treatment but rather the result of factors such as high motivation. A final consideration which may limit the findings of this study is the lack of follow-up due to practical considerations.

## Implications

The results of this study can assist in understanding the differences between chronic pain suffers on the basis of compensation status. Consequently, the results of this research have clinical implications as well as offering

suggestions for further research. In addition, socioeconomic consequences are implied.

Clinical Implications

This research found that workers' compensation subjects reported higher levels of depression and lower levels of hope than nonworkers' compensation subjects. This may be explained in part by factors associated with the workers' compensation system in addition to the experience of chronic pain. Because the intervention helped the workers' compensation and noncompensation subjects to a similar extent, the cognitive-behavioral counseling treatment should be available for workers' compensation clients. This cognitive-behavioral treatment could include an additional psychoeducational intervention as a supplement to counseling. This psychoeducational component would be designed to offset the emotional ramifications of being in the workers' compensation system. As described, involvement in the workers' compensation system may have detrimental emotional consequences on injured workers. The psychoeducational component could clarify this complex system, which is often confusing to injured workers and may have serious consequences on their emotional, financial and physical well being.

Another clinical implication concerns the result of this study showing less change in levels of hope in workers' compensation subjects. Because hopelessness is often

reduced by increasing an individual's self-efficacy (Seligman, Weinraub, & Schulman, 1987), counseling interventions with workers' compensation subjects should attempt to empower the individual and improve self-management skills. The acquisition of improved skills may assist individuals with chronic pain in regaining a sense of hope and control with their present and future challenges.

Future Research Implications

This research relied on the subjects' description of their emotional states through self-report measures. Future researchers may want to include behavioral measures in order to assess objectively an individual's changes and actual coping skills. This would affirm that such clients indeed were utilizing the skills acquired in the cognitive-behavioral intervention and would help to circumvent the limitations described for self-report instruments.

Additional future research could utilize strictly workers' compensation clients in contrast to a broad chronic pain group. This focus would help to identify the special needs of workers' compensation subjects in addition to clarifying the specific aspects of counseling interventions that workers' compensation subjects respond to most favorably. This research could identify the "active ingredient" of cognitive-behavioral interventions that

compensation subjects find the most helpful. Future research should include 30- and 90-day follow-up sessions to assess the long-term effects of the cognitive-behavioral intervention.

Social Implications

Expenditures for injured workers continue to rise at an alarming rate. Expense estimates for lower back injuries alone have risen beyond $30 billion per year, with a substantial proportion of these expenses paid by the workers' compensation system (Walsh & Dumitru, 1991). These soaring costs, and the realization that most individuals with chronic pain find limited relief with traditional medical interventions, raise the need to address the difficulties facing injured workers.

This research may have implications in the treatment of chronic pain and for medical cost containment. More specifically, medical treatment for chronic pain patients often does not significantly reduce pain symptoms. Moreover, chronic pain is the result of broader, multidimensional factors and is more than simply physiological. An individual's experience of pain may be increased by stressors associated with interpersonal, social, financial, and medical issues. In the case of workers' compensation clients, many aspects of the system may contribute to an individual's experience of discomfort

and pain. Patients seek medical remedies for what they perceive to be as only a physical problem.

On the other hand, if counseling interventions designed to reduce patients' discomfort and increase functionality are implemented early in treatment, unnecessary medical procedures and resulting costs may be reduced. For example, unnecessary invasive medical interventions and the resultant iatrogenic (i.e., adverse condition in a patient resulting from medical treatment) problems may be avoided.

With the emergence of managed health care, the utilization of counseling interventions early in the treatment of chronic pain clients may be advantageous because it can be cost effective when compared to medical treatments. Thus, counseling interventions may be cost-effective as well as beneficial to clients.

## Summary

This research measured initial levels of hope and depression as well as differential response to a cognitive-behavioral treatment intervention in relationship to the subjects' workers' compensation status. In addition, the retention rates were compared with respect to compensation status. The relationship of hope and depression also was examined. Although the initial levels of hope were not significantly different, differences in the initial levels of depression were. The differential response to treatment indicated that both groups responded equally well in regard

to reported levels of depression; however, compensation subjects did not develop the same degree of hope as did their noncompensation counterparts. This research revealed that the retention rates were nearly identical in regard to compensation status.

This research found that compensation clients reported higher initial levels of depression, yet responded as favorably to treatment as the noncompensation subjects. This suggests that cognitive-behavioral counseling interventions should remain available to individuals in the workers' compensation system. Additional counseling interventions should be provided to compensation subjects to offset symptoms of depression. Counselors should consider providing an additional intervention such as a psychoeducational component that clarifies the process as well as the potential detrimental impact of the workers' compensation system. This component could circumvent the negative emotional and behavioral aspects of individuals' involvement in this system.

Additional research should clarify the special needs of injured workers with chronic pain in the compensation system. Specific counseling for this clientele may provide relief from their symptoms of depression and hopelessness that is not available with traditional medical interventions. Finally, appropriate counseling interventions can offset the alarming personal, social, and

financial expense of the epidemic in the workers' compensation system.

## APPENDIX A
## PHYSICIAN LETTER

Dear Area Physician/Physical Therapist:

I am a doctoral candidate at the University of Florida and my dissertation research consists of evaluating differential treatment response to a counseling intervention by workers' compensation and noncompensation chronic pain patients. I am offering a cognitive-behavioral counseling program to mixed groups of chronic pain patients in the area as a part of this research.

I am writing to invite your participation in my research. I would like for you to consider distributing the enclosed letters to your patients with nonmalignant chronic pain. I am seeking a heterogeneous sample of individuals suffering from, for example, headaches, shoulder-arm pain, arthritis pain, hand pain, cervical pain, or back pain. Individuals appropriate for inclusion in my study should have exhausted invasive medical treatments. However, those participating in physical therapy may be considered appropriate for inclusion in the study. This includes individuals with clear objective findings as well as those with little or no objective findings and individuals you believe may be experiencing pain more from psychological difficulties than from physiological or organic sources.

The cognitive-behavioral approach used in my research is a short-term 8-hour treatment intervention. An educational approach will be used with structured content and didactic teaching combined with psychological techniques such as role playing, rehearsal, and group interactions.

Presentations will include an overview of the difference between acute and chronic pain stressing the multidimensional aspects of chronic pain. The roles of cognitions and emotions in pain perception and the interrelationships among stress, tension, and pain, with examples given, will be discussed. Relaxation as a stress control technique will be presented and progressive relaxation, imagery, and deep breathing will be practiced as stress control techniques.

Please do not hesitate to contact me if you have any questions regarding my research or criteria for inclusion of patients in this study. Your cooperation is appreciated.

Sincerely yours,

_____

Robert P. Hosford, M.H.S., CRC
Florida Provider No. XC-01-03570

APPENDIX B
LETTER OF INVITATION

Dear Pain Patient:

I have asked a number of area physicians to mail or give this letter to patients they feel may benefit from participation in a program for individuals with pain.

I am a Licensed Mental Heath Counselor, a Rehabilitation Counselor, and a doctoral student at the University of Florida. For the past 5 years I have worked with injured workers, many of whom were experiencing chronic pain. After researching counseling interventions that have been demonstrated as being effective for people with ongoing pain, I have adapted a short (four-session) group counseling program that has been used in many university and hospital settings. Counseling programs such as this may not reduce pain levels, but these programs have been effective in helping patients understand and more effectively cope with their pain.

This program is offered as a part of a research project with the University of Florida and will be available in four locations in the north Florida area. If you are interested in volunteering for this treatment or if you have questions about it, please telephone me at (904) 336-6415 and leave your name and a telephone number. I will call you back and let you know the specific locations and dates of a group near you or answer any questions you have.

There will be no charge for your participation in this group, and any information resulting from your participation will be kept confidential. I ask that you consider carefully your willingness to attend as I would like all patients who begin the treatment to complete the four sessions.

Thank you for considering this treatment option. Please telephone me to indicate your willingness to participate in the study or if you have any questions.

Sincerely yours,

_____

Robert P. Hosford, M.H.S., CRC, NCC
Florida Rehabilitation Provider

APPENDIX C
LETTER OF INTRODUCTION

Dear Pain Patient:

Thank you for your interest in participating in a group counseling program for people with chronic pain. The goal of this program is to increase your pain management and coping skills, which will better help you to deal with your ongoing pain. This group will meet for 2 hours one time per week for 4 consecutive weeks. Researchers have demonstrated this type of group treatment is effective in helping people deal more effectively with their pain; however, these interventions do not necessarily reduce pain levels.

I would like all participants who begin the program to complete all four sessions. The skills and exercises presented in the group sessions will require your practice at home to increase effectiveness. As such, please carefully consider the time commitment required for this program before volunteering to be a participant.

I have the use of four facilities in North-Central Florida communities (Gainesville, Ocala, Chiefland, Lake City, and Live Oak) for the group meetings. Thank you for your interest in the pain management group. Please telephone me to indicate your willingness to participate in the study or if you have any questions.

Sincerely yours,

_____

Robert P. Hosford, M.H.S., CRC, NCC
Florida Rehabilitation Provider

APPENDIX D
INFORMED CONSENT

Respondent's Name_____

In order to participate in this study, I understand I will attend four weekly 2-hour group sessions designed to improve my pain management and coping skills. As part of this study I will be asked to complete two short assessments three times during these group sessions and also a demographic questionnaire. I understand that I will not have to answer any questions on the questionnaire or the assessments that I do not wish to answer. I will be identified on the demographic questionnaire and the assessments by research number only. This information will be kept on file in the researcher's office. No other persons will be given access to my demographic questionnaire or my test scores.

I understand that Mr. Hosford is a doctoral candidate in the Counselor Education Department of the College of Education at the University of Florida, and he is conducting this research as part of his doctoral program. Mr. Hosford has informed me that he will be available to answer questions I may have about this study and that I am able to request an abstract of the results of this research. He may be reached at P.O. Box 2006 Gainesville, FL, 32602, or by telephone at (904) 336-6415. He has informed me that I will receive no compensation for my participation in this study and that I am able to withdraw this consent and my participation in this study at any time without negative consequence.

I have read and I understand the procedure described above. I agree to participate in the study and I have received a copy of this description.

Signed:

_____ _____
Participant Date

_____
Address Telephone number

_____ _____
Researcher's Name Date

APPENDIX E
DEMOGRPAHIC QUESTIONNAIRE

Client Code_____

I would like to ask some questions about you and your medical history. This information will better help me to know you and your pain experience. Please fill in the blank or circle one number which represents the best answer to each question.

Age _____

Sex
1 = MALE
2 = FEMALE

Race
1 = BLACK 2 = HISPANIC
3 = WHITE 4 = OTHER
5 = ASIAN 6 = AMERICAN INDIAN

Marital status
1 = SINGLE 2 = MARRIED
3 = SEPARATED 4 = DIVORCED

Education level
last grade completed_____

Are you eligible for or receiving workers' compensation benefits?

No _____ Yes _____

Year and month of pain onset _____ (for example, July, 1989)

Type of injury or illness. Please use appropriate diagnosis if possible.

_____

_____

_____

_____

Number and dates of surgical procedures.

_____

_____

_____

Have you seen a counselor, psychologist, or psychiatrist for treatment as a result of your chronic pain?

1 = NO

2 = YES

APPENDIX F
HANDOUT ON COGNITIVE RESTRUCTURING
AND NEGATIVE SELF-TALK

Your thinking patterns

Identify five unhealthy or negative patterns you use.

1._____

2._____

3._____

4._____

5._____

Please record an irrational self-talk statement or thought you use frequently.

_____

_____

Please identify a healthy thought you can substitute for the irrational one.

_____

_____

Now write two rational questions or statements challenging your irrational thoughts.

1._____

2._____

Rate the thought stopping method you have found most effective.

_____ Verbal shouts _____ Nonverbal shouts

_____ Rubber band _____ Snapping fingers

_____ Stomping foot _____ Clapping hands

_____ Other

(describe)_____

Rate the following themes or patterns in your self-talk:

_____ Perfectionism _____ Destructive labeling

_____ Unrealistic expectations _____ Mind reading

_____ Discounting the positive _____ Mental filter

_____ All-or-nothing thinking _____ Overgeneralization

_____ Driver attitudes (specify) ____ Minimization

_____ _____ _____ Magnification

_____ _____ _____ Urgency

What two have you had the most difficulty changing?

1._____

2._____

What positive self statements have you found to be the most helpful?

1._____

2._____

3._____

4._____

5._____

## APPENDIX G
## RELAXATION EXERCISE WORKSHEET

Most people do not realize which of their muscles are chronically tense. Progressive relaxation provides a way of identifying particular muscles and muscle groups and distinguishing between sensations of tension and deep relaxation. Four major muscle groups will be covered:

1. Hands, forearms, and biceps.
2. Head, face, throat, and shoulders, including concentration on forehead, cheeks, nose, eyes, jaws, lips, tongue, and neck. Considerable attention is devoted to your head, because from the emotional point of view, the most important muscles in your body are situated in and around this region.
3. Chest, stomach and, lower back.
4. Thighs, buttocks, calves, and feet.

Progressive relaxation can be practiced lying down or in a chair with your back and neck supported. Each muscle or muscle grouping is tensed from 5 to 7 seconds and then relaxed for 20 to 30 seconds. This procedure is repeated at least once. If an area remains tense, you can practice up to 5 times. You also may find it useful to use the following relaxation expressions when untensing:

Let go of the tension.

Throw away the tension--I am feeling calm and rested.

Relax and smooth out the muscles.

Let the tension dissolve away.

Once the procedure is familiar enough to be remembered, keep your eyes closed and focus attention on just one muscle group at a time.

Get in a comfortable position and relax. Now clench your right fist, tighter and tighter, studying the tension as you do so. Keep it clenched and notice the tension in your fist, hand, and forearm. Now relax. Feel the looseness in your right hand and notice the contrast with the tension.

Repeat this procedure with your fight fist again. Always notice as you relax that this is the opposite of tension-relax and feel the difference. Repeat the entire procedure with your left fist, then both fists at once.

Now bend your elbows and tense your biceps. Tense them as hard as you can and observe the feeling of tautness. Relax and straighten out your arms. Let the relaxation develop and feel the difference. Repeat this and all succeeding procedures at least once.

Turning attention to your head, wrinkle your forehead as tight as you can. Now relax and smooth it out. Let yourself imagine your entire forehead and scalp becoming smooth and at rest. Now, frown and notice the strain spreading throughout your forehead. Let go. Allow your brow to become smooth again. Close your eyes now; squint them tighter. Look for the tension. Relax your eyes. Let them remain closed gently and comfortably. Now clench your jaw, bite hard, notice the tension throughout your jaw. Relax your jaw. When the jaw is relaxed, your lips will be slightly parted. Let yourself really appreciate the contrast between tension and relaxation. Now press your tongue against the roof of your mouth. Feel the ache in the back of your mouth. Relax. Press your lips now; purse them into an "O." Relax your lips. Notice that your forehead, scalp, eyes, jaw, tongue, and lips are all relaxed.

Press your head back as far as it can comfortably go and observe the tension in your neck. Roll it to the right and feel the changing locus of stress; roll it to the left. Straighten your head and bring it forward; press your chin against your chest. Feel the tension in your throat and the back of your neck. Relax and allow your head to return to a comfortable position. Let the relaxation deepen. Now shrug your shoulders. Keep the tension as you hunch your head down between your shoulders. Relax your shoulders. Drop them back and feel the relaxation spreading through your neck, throat, and shoulders, pure relaxation, deeper and deeper.

Give your entire body a chance to relax. Feel the comfort and the heaviness. Now breath in and fill your lungs completely. Hold your breath. Notice the tension. Now exhale; let your chest become loose; let the air hiss out. Continue relaxing, letting your breath come freely and gently. Repeat this several times, noticing the tension draining from your body as you exhale. Next tighten your stomach and hold. Note the tension, then relax. Now place your hand on your stomach. Breathe deeply into your stomach, pushing your hand up. Hold and relax. Feel the contrast of relaxation as the air rushes out. Now arch your back, without straining. Keep the rest of your body as relaxed as possible. Focus on the tension in your lower back. Now relax, deeper and deeper.

Tighten your buttocks and thighs. Flex your thighs by pressing your heels as hard as you can. Relax and feel the difference. Now curl your toes downward, making your calves tense. Study the tension. Relax. Now bend your toes toward your face, creating tension in your shins. Relax again.

Feel the heaviness throughout your lower body as the relaxation deepens. Relax your feet, ankles, calves, shins, knees, thighs, and buttocks. Now let the relaxation spread to your stomach, lower back, and chest. Let go more and more. Experience the relaxation deepening in your shoulders, arms, and hands. Deeper and deeper. Notice the feeling of looseness and relaxation in your neck, jaws and, all your facial muscles.

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BIOGRAPHICAL SKETCH

Robert P. Hosford was born in New Orleans, Louisiana, on July 17, 1945. He was the oldest of two sons of Frank and Elizabeth Hosford.

In 1964 he graduated from Valparaiso High School in Valparaiso, Indiana. He attended Parsons College in Fairfield, Iowa, during 1964 and 1965 and entered the United States Marine Corp. in 1965. He served in Viet Nam as an enlisted man during 1966 and was discharged during the fall of 1967. After employment as a construction worker, he returned to Parsons College and graduated with honors in 1971.

He moved to Florida and worked as a counselor in residential drug programs in St. Petersburg and Clearwater. He remained a drug abuse counselor until 1977 when he moved to Gainesville, Florida, to attend graduate school at the University of Florida. Robert received a master's degree in health science in rehabilitation counseling in 1979.

He became a licensed mental heath counselor in 1983 and worked in a number of settings as a counselor and a rehabilitation counselor. In 1982 he enrolled at the University of Florida in the doctoral program in counselor

education with a subspecialization in rehabilitation counseling.

During the late 1980s he worked primarily as a rehabilitation counselor in the private sector serving industrially injured clients. Robert presently is in private practice as a counselor and rehabilitation counselor. He is a licensed mental health counselor and has professional certifications as a Certified Rehabilitation Counselor, a National Certified Counselor, a Florida Rehabilitation Provider, and a Certified Case Manager. In 1993 he was elected to serve as the Southern Region Director for the American Mental Health Counselors' Association. Robert; his wife, Paula Lovett; and his daughter, Mandy Hosford, reside in Gainesville, Florida.

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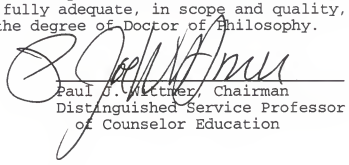

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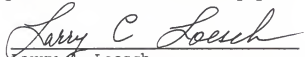

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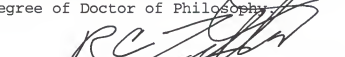

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